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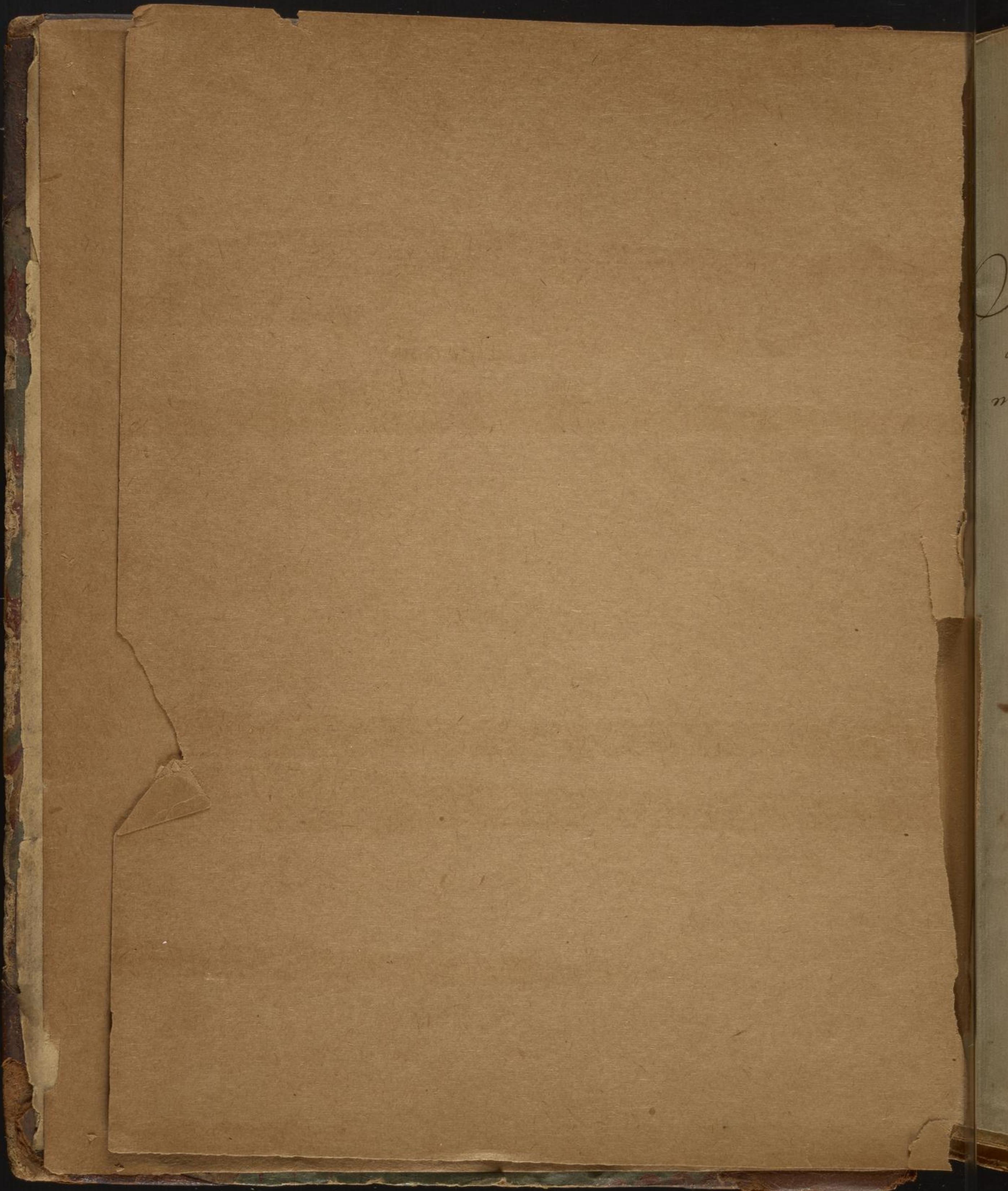
ATHENÆUM OF PHILADELPHIA.

PRESENTED BY *James Cox*



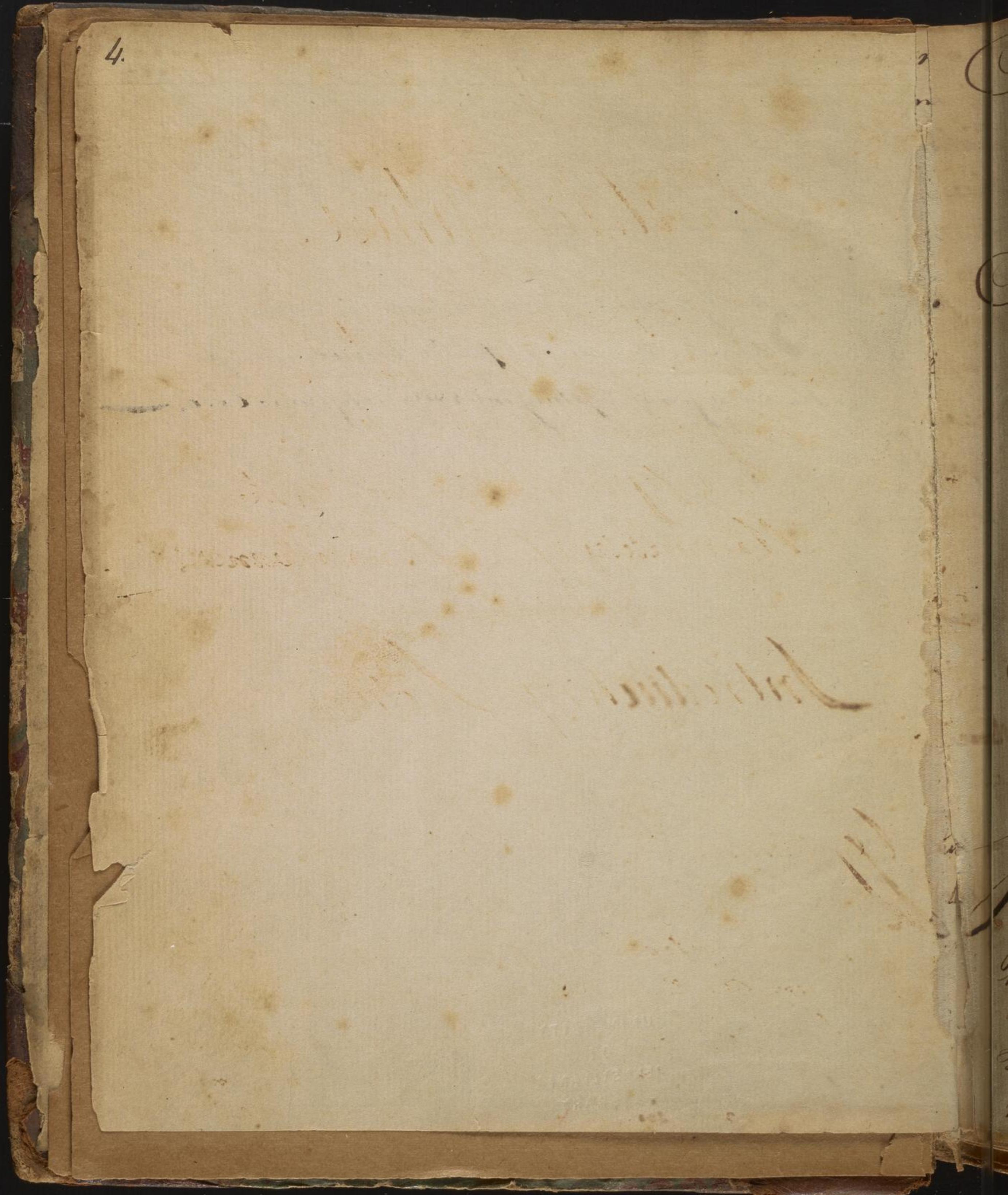
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Item 13



1
Jacobus Graham medicina studio se addixit
auo decima die mensis Aprilis, Anno redemptions
nostra Adlesimo septingentesimo octagesimo Octo.

in line.



November 3^d 1788.

123.

Philadelphia.

Notes taken from a Course of
Lectures on Chemistry by
Benjamin Rush M. D.
Professor of Chemistry in the
University of Pennsylvania.

Introductory Lecture.

Gentlemen,

I once more have the honour of addressing
you previously to a Course of Lectures on Chemistry & the
History and Practice of Medicine. In this Lecture I shall indea-
vor to shew the objects, importance & usefulness of Chemistry.
The professor of every Science thought, that the more ancient
the origin of that science could be placed the more dignity it

4. it is said. Chemistry therefore had its origin placed in
times of the most early Antiquity. Thus Noah whom
we read of in Scripture, was unadvis'd the art of making
wine, & Tubal-cain who was a worker in brass were
said to be expert Chemists. In my opinion Chemistry
instead of being the most ancient, is the most modern
of the Sciences. The persons who say otherwise do not
distinguish between the practice of an art and the principles
of a Science. But being a modern Science it now
detracts from its dignity; for as Lord Bacon observes
those sciences which are of most use to mankind have
required the longest time for their formation: thus
Astronomy, Navigation, Electricity were not reduced
to fixed principles till modern times.

The Earth and every compound substance
which lies hid in its bowels, or is exposed on its
surface; the waters and whatever are contained in them
the air and all other objects furnish the objects
of Chemistry. From hence appears what an extensive
Science it is. How it will be proper to mark the
difference between Natural Philosophy & Chemistry
The first treats of the general properties of Bodies

as Specific Gravity, Soliarity, Elasticity &c &c whilst^{5.}
the latter only treats of their particular Qualities. Thus
with regard to Air: The Natural Philosopher explains
its Transparency, elasticity, weight, Bulk &c whilst
the Chemist endeavours to determine whether it is a
compound or simple Body; if a compound, what are
its constituent parts, in what manner these parts are
united. Lastly the effects of heat and moisture upon it.

A Knowledge of Chemistry is of the greatest use to
the Physician; it is absolutely necessary he should
be acquainted with it, for without it, he can get
little insight into the nature of the animal fluids.
By an acquaintance with it he is enabled to discover
that the important process of digestion in the Stomach is
partly at least carried on by a Chemical process: some
light is also thrown on secretion by the renniforms.
It must be remembered however, that the Laws, which
apply to the action of dead matter upon dead matter,
cannot be applied, but with considerable restriction,
to the action of inanimate on animate Bodies.
This was not attended to when Chemistry was ^{first} made
use of to explain the Functions of the animal machine.

6. how it was frequently applied in a very unboim
bit and injudicious manner, to account for the Pho-
nomena in the animal system; which are produced
by causes totally inexplicable on Chemical prin-
ciples. But a more extensive Knowledge of the Sciences
removed the false application of it. - The mechanico-
Philosophy, when first introduced to account for these
Phenomena, was used in the same unlimited injudicious
manner; but for the same cause it is at present applied
with considerable restriction, and consequently with
more propriety. We are still un-acquainted with ^{the} cause of
Heat. You could render this cause apparent if we
knew ^{the} light on many ^{the} appearance, as which occur in the
animal economy, which are now entirely concealed from
us. Chemistry, as will hereafter be made to appear,
tends most evidently to the disclosure of the cause of
this Phenomenon. This Science is also applied
with the greatest advantage to Pathology: - Thus by
a Knowledge of it, we may be led into the proper
method of investigating the causes of disease, and the
manner in which the potentio noxiantes as they are
called produce their Effects in the human Body.

How we are not ready to conclude that the contagious
marmata exert their malignant influence by exciting
a species of fermentation in the Blood?

An intimate Knowledge of Chemistry is absolutely
necessary for the Physician, for if ignorant of it, he will
be liable to prescribe affuent Medicines at the same
time which might decompose each other, or render
the composition inert; or, by their action on each other
they might produce new compounds possessing qualities
entirely different from those the practitioner expects;
perhaps by the new arrangement of parts which takes
place they may generate substances of very noxious
qualities. We have reason to believe that the mineral
Kingdom contains an Antidote to every disease with
which the human Body is liable to be affected. - Thus
we find Tartar emetic to be a certain cure in most
cases of fever when exhibited in certain stages of
the disorder and in proper doses, at the necessary
intervals of time. The unusual Disease "that just
scapes of unlawful embraces" baffled the attempts of
the most eminent Physicians to cure it until
nobody was discovered to be its certain antidote.

8. It is by Chemistry we are taught to prepare these and other
mineral Substances so as to be fitted to enter the human Body.
It is by the assistance of this Science we are enabled to determine
medicines from Substances the most impure. Some persons have
imagined that the vegetable Kingdom contained medicines fully
capable of removing gall diseases, and therefore that there is no
necessity for having recourse to the mineral Kingdom. But I
would beg leave to ask these Gentlemen did not the same Almighty
hand, which planted the Poppy, and endue the Peruvian Bark
with its wonderful Qualities, infuse a medicinal Virtue into the
Substances which are buried in the bowels of the Earth. I do not
mean to infer that Galenical medicines possess no healing proper-
ties; on the contrary I think they are endued with very valuable
virtues; but Chemistry is still applicable here, as scarcely any
vegetable can be prepared for use without its aid. —

This Science also explains the doctrine of heat and cold; how
it is further useful to the Physician, as by its means he can ascer-
tain the Qualities of the Climate in which he lives. The Knowledge
of these Qualities is absolutely necessary to the Physician who
is engaged in practice, as many Diseases take their Origin
from a sudden Change in these Qualities. All diseases are
most affected according to the State of the Climate in which
they happen. By a Knowledge of Chemistry, Physicians
are sometimes enabled to discover the Causes of Disease
which otherwise would have remained concealed from them.
Dr. Baker by being grounded in this science, has pretty
fully ascertained the Cause of the Devonshire Cholic. —

~~This water so justly deserves the name, which
is used in the country, as
impregnated with lead in that Country. This liquor~~
becomes thus impregnated by running from the pipes thro'
leaden pipes & during its acidity passes by its acidity depositing
parts of this metal. Some years ago the people of Amsterdam
~~Some~~ ~~people~~ were much affected for several succeed-
ing Autumns with a species of Colic much resembling
that of Devonshire. It was discovered by a Physician
that this disease was occasioned by the use of water
impregnated with Lead. His conjecture that the water
rec'd this impregnation from the leaves of the trees, which
grew before almost every house, during the Autumn
falling on the roofs of the houses, all which were at that
time covered with lead. These leaves lying there would form
thus some Acetic acid which would corrode the lead, & after-
wards down by the succeeding rains, which water was
used in diet by the Inhabitants. His conjecture has
been fully verified; for since that time the leaden roofs
have been removed & tiles made use of. The Colic now is
very seldom heard of.

Chemistry is of the greatest service to the Metallurgist
I would have extend the meaning of metallurgy so that when
is commonly done, I would comprehend under every operation
which is performed on every metals by any artist whatever
the Alchymist have torn open the bowels of the Earth
to discover a substance capable of converting the baser

8. 10. Metals into Gold. They failed, however, in all their attempts. In
now would have attempted it at all, if they had considered the
Gold is valuable only on acc't of its scarcity. Therefore if they
succeeded in producing this change, they would have defeated the
purpose for which they underwent such great labour; i.e. Their em-
ployment would have been very little indeed. They however, must
insured metallurgy — The limits of this lecture were
sumit. I might have dwelt upon the usefulness of Chem-
to the Brewer, the Baker, the Dyer, the Soap Manufacturer, the
Bleacher, &c. Carpenter, the painter &c. worker in Clay
for the maker of paste to the fabricator of the most common
earthen ware — It is also invaluable to the natural by
From Knowledge of it our illustrious Countryman Dr. Franklin
has been able to discover that Human lightning occurs
owing to the presence of nitrous acid in the air, but are created
caused by the action of Electricity. From what has been
said it is apparent that a Knowledge of Chemistry should
not be confined to the Physicians, but that it is invaluable
to many artists, and that it merits the attention of every man
who wishes to complete a liberal Education —

I cannot refrain from congratulating you when you
that we are placed in a Country when there is such a va-
sade for the exercise of Genius. It abounds so plentifully in
substances which are the objects of Chemistry. Thus precious
stones of almost all kinds are found on the Banks of the Ohio. Clay
useable to the making of Porcelain & Ceramics in the Del. & State
Lead & Copper in Pennsylvania. Iron, Cobalt, Tin & even natural
mercury in New Jersey. When we consider this, it is a presumption ^{on the} to expect to have our names enrolled with those of a Cullen or a Black.

In our introductory Lecture we pointed out the class of Chemistry. At present we shall proceed to say something of its origin. This Science was rocked in its cradle in Egypt and from thence traveled into Greece & Rome. Moles we find mixed Gold with Water, & from hence we conclude he had some Knowledge of Chemistry. In Greece Chemistry made some progress; but as it was entirely confined to Greeks I made less advancement than it otherwise would have done. In Rome it first made its appearance as a regular Science at this time the Alchemists made their appearance, who aimed at turning the base Metals into Gold; which coming to the Knowledge of the Emperor Dioclesian, he published an Edict which put a stop to their attempts, fearing, if they succeeded by amassing wealth, they might be enabled to rebel against him. About the 10th Century Chemistry received in Arabia & Avicenna wrote at this time upon Alchemy. From Arabia Chemistry with the other Sciences traveled westwards & first fixed its seat in Spain & made its next appearance in Germany.

This Country is peculiarly adapted for its improvement as it abounds with Minerals. Boerhaave gives a long list of persons who cultivated the science in this Country, but Paracelsus appears to be the first worthy of our notice.

12. He seems to be a very singular and extraordinary Character and distinguished above all Chemists. Before him Galen reigned the Tyrant in the Schools of Physic Paracelsus first disputed and called in Question his Doctrine. His opinions tho at first thought bold, finally overthrew that of Galen. Soon after the Death of Paracelsus chemistry made its appearance in England, it was particularly done by Lord Brouncker, who was the first who wrote upon the Science in that Country. His works are ingenious and deservedly valued. Soon after him appeared the celebrated Mr. Boyle who did more Service to Chemistry, than all the Authors that lived before him. As he was born in easy Circumstances it was in his power to improve the Science very much by employing a great number of Artists in his Service. He was a Man of great Sagacity & Acuteness, and his writing are in a plain easy style. He concealed nothing but those things which he rec'd under promise of Secrecy, or which he thought would be detrimental to the Community if divulged. In some cases he was rather too credulous, in capable of deceiving others he imagined no one would accuse him. He exposed the then Philosophy of those days. He reasoned entirely from Facts and declared that he learned more, from frequenting the Shops of Artificers, than from all the Books he ever read. The works of Bacon & Boyle spread a desire of this Knowledge all over Europe. About this time the Royal Society was formed at London. Their Example was followed by other of Europe.

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Genious in other countries. In Germany Stahl, Hoffmann
Kunckel & Marquart were as Chemists. In France
Geoffroy, Lemire, Macquer Rouelle &c. In England Chemistry
made but little progress. It has lately received some
Mr. Lewis spread a taste for it among some people of the
first rank. His Philosophical correspondence shows
how much the arts may be improved by Chemistry
Dr. Priestly & Don't. McLeavandist have collected facts. To Dr.
Cullen & Black of Edinburgh we are particularly indebted
for their facts being arranged. Dr. Black deserves to be
considered as the Father of Chemistry, and first taught it as
a regular Science, we shall thro this lesson consider it in
this light. Mr. Boyle considered it as a Branch of Natural
Philosophy. most late writers consider it as an art. The
Compounders of medicines have been called Chemists, but
improperly, as they are no more Chemists than the Brewer
or the Baker; he is only an artist who puts in practice
what Men of Science have discovered. Great care
should be taken to distinguish Chemistry from the other
Sciences. hence we should be cautious in admitting a
definition of it. Dr. Stahl's definition is too long & besides
he considers it as an art. Macquer abounds with terms
as difficult to be understood as the Term Chemistry itself.
Dr. Black has fixed upon a definition which is devoid of
these faults. Chemistry is that Science that teaches the
Effects

11. Effects of heat & mixture, to improve our knowledge in
Nature and Arts, "Now more we attend to this definition
We now we shall be pleased with it. Heat & mixture
produce all the changes which natural bodies undergo
Heat enlivens all nature and it will afford us much
instruction to contemplate its effects. We will just men-
sue its use in the operations upon vegetables. By its action
we obtain infusions, decoctions, resins, from burning of the
we obtain from their ashes a salt which combined with
oil forms soap; this same salt when fused with vitreous
Earth gives us glass. By Mixture the Metalurgist
enabled to fus his ore. By the mixture of Detunty & the
we form Porcelain. all our beautiful garnishes are formed
by the mixture of resin and spirit of wine. All the
different points and Colours are formed by mixture.
Ether is produced by adding an acid to spirit of wine.
Now is surely a chemical operation, in which mixture
not a useful and necessary agent, some object to our defining
that Chemistry is not a Science, that it tends only to
improve our knowledge in Nature and not in the Arts;
for say they, the improvements in the Arts have been made
by the Artists themselves, who were ignorant of Chemistry.
We grant and the love of money may have led some gen-
tlemen to make discoveries, but the greatest were made
by men eminent in Chemistry, and who were ¹⁸⁰ ~~thoroughly~~

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ignorant only of the name of the Science on which
they excel, we shall now treat of the plan we mean to
pursue. We shall first treat of the general Effects of heat
&c of the general Effects of mixture. &c &c of the vessels
made use of in Chemical Operations. This we owe to consider
as the first part of our course. In the second part
we more properly call the objects of Chemistry
These are first divided into Salts 2^d Earths 3^r Inflammables
Acids & Waters besides Animal & Vegetable Substances
In speaking of these bodies we shall first treat of the
Effects of heat; secondly those of mixture. Thirdly a short
acc^d of their medical History. Under one or other of these
heads we shall comprehend the science of Chemistry.

It is a natural question for young men entering
upon this study to enquire what Books they shall read
and I must own myself at a loss to know what Books
to recommend to you. Boerhaave's Chemical Works
are only useful on acc^d of the Descriptions of the Operations;
but he is often tedious & sometimes faulty. Thompson in his history
of the Virtues of his preparations. Broyle's works may be consulted
occasionally with advantage. His natural history of Birds,
the Human Blood, and of precious Stones are worth your
attention. Macquer's Elements of Chemistry is a Book that
that should be in all your hands but he is faulty in point of System.

16 System, Drury, or Stoer, say it shall have frequently no
mention his Name only to point out his Errors. —
Fourcroy's Chemistry is an useful work. Perusides
all Humane Discoverys, you will find some good ob-
servation in natural History. Kirwines Mineralog
may also be consulted. This is the first writer who has
brought Chemistry to the Aid of natural History.
The Connection between these Sciences is very great.
It has been justly observed, that, When Nature ends,
Chemistry begins, and when Chemistry
ends the Physician begins. —

Section 1st

We come now to treat Of Heat. —

We will not pretend to account for the cause of it
Lord Bacon deduces it from the motion, friction & pressure
of bodies which appears plausible, but it is not true, as
heat is by no means proportioned to motion, and
motion will not explain all the effects of heat —
Thus derive it from the tumultuous motion or vibration
of ~~bodies~~ an elastic fluid in the pores of bodies. Sir
Isaac Newton, calls it Ether, from which he also expla-
ns the phenomena of Electricity, magnetism and
Gravitation. There are some things which tend to prove &
thus to refute this notion. & others have been more

more successful in their Conjectures than their two Phys^o.
By Heat we mean the power of exciting Expansion,
Fluidity, Vapour & Ignition in Bodies.

The Laws of the Communication of Heat are the
following —

1^o The Communication of Heat is common to all Bodies
and peculiar to none, always tending to equilibrium
This shew the expansive power of heat, which is always
endeavouring to reduce them to a common

2^o The Communication of Heat requires some time
and different times for different Bodies —

3^o Two Bodies of ^{supp} different Quantity & Quality of Matter
but different in shape, lose or receive heat in proportion
to their surfaces. The larger the surfaces are the quicker
one they affected with heat or cold. Thus a small cube
will grow hot or cold, sooner than a larger, as the former
contains a greater surface in proportion to the quantity
than the latter. Thus also a good leaf will be much
more affected with heat or cold, than a hard stone
or leather containing the same Quantity of Matter. We
shall shew this law to be of application hereafter, when we
come to treat of Thermometry.

4^o Two Bodies of the same matter and form, but different
Quantity heat cool in proportion to their Diameters

5^o Heat passes out of Bodies quicker in proportion when
the layers are fewest.

fewest

10. ^{fewest}

6. Heat is communicated to bodies, quicker or slower in proportion to the contiguity of parts. Thus heat will be communicated from one cube to another quicker than from one sphere to another, as the latter have but one point of contact.

7. Surfaces and bulk being given they receive or lose heat in proportion to their quality. what this quality is we know not, Murchison supposes this to be due to the density of bodies, but he is mistaken, as this will not always hold good. It is more probable that the property of conducting heat, depends upon some intrinsic quality of the body. There are conductors and non-conductors of heat, as well as of Electricity. Metals are good conductors of both. Wood conducts heat slowly. Some suppose wood handles to be less frequently exposed to the fire. We are not certain which is the best conductor, heat, water or air; but it is probable water is, as it cools much sooner when immersed in it, than when exposed to the air. There is only now conductor of heat is air, & heat may perhaps only be communicated by the heterogeneous particles in the atmosphere. However here another analogy between heat & Electricity.

Wool, & feathers &c are non conductors of Electricity. 19
and they transmit heat very slowly hence the propriety of
using woolen cloaths in the Winter; hence also the utility
in the practice of the Germans in sleeping
under a light feather bed, which saves a great expence
and weight of good cloathes. From these substances
keeping us warm we are apt to think them warm in them-
selves, but this is not the case as they will keep bodies cool.
Thus, Ice is kept from melting in summer by wrapping it up
in Hay, straw woolen cloathes &c; and Ice houses are
generally lined with some rare spongy substances.

Light spongy bodies confine the Heat or do not conduct it off
hastily. Thus we see the reason why snow contributes
to make a soil fertile; for by confining the heat of the
Earth it renders it moist & viable. Upon this acc't it
seems to be a wise provision of Nature in cold countries
to preserve vegetation during the winter season.

In Russia Siberia upon melting away of the Snow
the ground is frequently found covered with Water
Can we not to call this to our assistance it would
appear paradoxical that in Canada vegetation goes
on faster than in Pennsylvania. For the Snows
falling in Novem^r before the severe frosts, preserve

20. Prevent the Earth from being affected by the sudden
Frosts; whence have had very severe frosts before
Snows fall, which does not happen till January. The
subsequent rains have contributed to carry the frost into the
Earth. The earth here is usually frozen 3/2 feet deep; &
the side of a mountain that had north west aspect
was found frozen. Six. In the late cold winter.
Such a depth of frost is never known in Germany. &
as soon as the snow is melted away, the earth is so soft
that the Husbandman begins to plough as soon as the
immediately, which he cannot do here till the frost leaves
off the ground. This economy of Nature is very beautiful
and deserves our attention. Nature seems as provident
of the animals as of the Earth in cold countries. The
former she decks with a soft warm substance or fur; the
latter with a downy blanket of snow. When we open
soft bodies being bad conductors of heat, we meet
not solid bodies and not fluids. The colour of the
bodies has a considerable influence in the con-
duction of heat. It has been supposed by some that
reason why the hair grows white in old age, is to defend
heat of the nobler faculties, by preventing the heat from
being carried off. We have also another instance of

of the Animals in cold Countries. Those which
in the warmer climates are covered with hair when
taken to the cold regions lose their hair & receive a cloathing
of wool & you also shall see of a darker colour become
white.

Heat has always an irresistible tendency to fly
upwards, this is exemplified by holding the hand
near a hot iron, and in a clear sunshiny day, you
may see it ascending. This does not take place in
vacuo, as the heat there is equally diffused. Cold
has a contrary tendency as may be seen in Ice, and
other cold bodies, cooling bodies below them more than
those above. This must be owing to the colder air being
condensed & descending. Hence also sailors perceive the change
of temperature as they approach the land; for the air being
cooled by the ice upon the land and falling down upon the
sea. Valetudinarians who make a voyage for Health should
be careful to keep themselves as much as possible from the
open air, to encrust their cloaths and use every other means
of avoiding cold as they approach the shore. From this we
may solve the following Phenomenon. It is observed
that if a piece of Ice be suspended in the open air in a cold
night it will weigh considerably less in the morning.

22. On a mass of Ice will thus happen by law of Draction
and sometimes two in the course of a night. The reason
of this is, that tho' the air may be cold the ice is still more.
The air therefore in contact with the ice from the 1st law
will insinuate its heat to it, and subside and its place will
be supplied by a fresh quantity, which is warmer. This
will induce the same change & the consequence will
be a diminution of the weight of the Ice from a part
being melted by the heat communicated from the air.
This reasoning is confirmed by observing that if the
Ice instead of being suspended is laid upon the ground
no such diminution takes place, the colder air cannot
subside and leave room for warmer air to supply its place.
From this law you will also understand why heat ap-
plied to the bottom of bodies heats them sooner than
when applied to the surface. From water transmitting
heat equally, it is employed to heat other bodies and
is called Paelnum maris or maris. Water never con-
ducts heat greater than 212°. Hence Mr. Lewis or com-
munity to be substituted in place of water which
receiving of a greater degree of heat, will act as no
universal solvent. but I cannot think it would

would answer, as it is too dense and heavy, and in large
precipices from the great quantity required. From the evapora-
tion which takes place it would be very expensive.
From this transmission of heat large bodies of water
of water preserve nearly the same degree of heat in every
state of the atmosphere. From this circumstance some of
our deep Lakes are never frozen in the coldest winters, as
the warmer water from below arises, and supplies the place
of the cold water on the surface which being condensed sinks.
Hence land situated near large collections of water, is never so
cold in winter as other land in the same latitude which is
more remote. Thus the cold in Great Britain which is
situated between the 50, & 60, Degree of North Latitude
is scarcely ever so great as in Pennsylvania as the former
is entirely surrounded with water. A question naturally
arising here, why air is not in all places equally
affected. The extreme cold which reigns in the uplandings
is truly astonishing and well affords some pleasure
to account for it.

All heat at least of the Atmosphere is derived from the sun
opaque bodies only are heated by its rays, and transparent
bodies are not affected at all. Thus a burning Glass is not
affected by the rays of the sun it transmits. If the rays are

11. one brought to a focus in the middle of a Bucket of water the water will not be at all heated, but if a piece of wood be ap-
ni that place it will be burnt to a coal internally, for the water
will prevent it from burning externally. The rays of the
sun then only warm the surface of the earth, and when
receives its heat entirely from the earth by reflection. hence
the air nearest the earth is warmest. But as air when heated
is rarefied, why does it not ascend, and when it has ascended
this is owing to its being compressed by the atmosphere above
which is supposed to extend fifty miles hence the air near
the surface is densest & when most rarefied is still denser
than that above, and therefore cannot ascend far.

The Difference in climate independent of the
Latitude depends upon —

- 1^o The Sun's greater or less perpendicularity to the Earth.
- 2^o The vicinity of the Lakes or large Bodies of water, which
send forth heat in winter & cold in summer. Hence Isle
of wenner in winter, and colder in summer than London
in the same Latitude. This greater warmth over large col-
lections of water, preserves them from the late frosts of the Spring
when it has been destroyed in parts farther from the
Oceans near or within a mile of the Delaware or within
a mile of it are seldom known to fail. In the Spring 1777

25.

The Truist was generally destroyed in this & throughout our
States except when growing near some water, on the
Shores of the Delaware, in most places it was unhusk'd,
but this preservation was more remarkable on the Jersey
Shore on the Pennsylvania Side, which was owing to the
wheat being carried in greater quantity that way
by the N.W. wind which generally prevailed —

3rd The difference in the quality of the Soil upon which the
Roups fall. Thus a stony rocky soil, is cooler than a sandy
one.

4th To the contiguity of mountains which screen from the
winds in winter, & cool the air in summer, for the snow & cold only remains
5 The winds blowing from different quarters of the Globe
Thus the N.W. wind in this country blowing over the frozen lakes
and immense tract of continent covered with perpetual
Snows is exceedingly cold. —

6th The presence of Clouds obstructing the rays of the Sun
This is another reason why Ireland's color is penitus
one cooler in summer than continents, from the flying
Clouds arising from the evaporation of the adjoining
Ocean continually hovering over them —

7th The situation and state of Scutum in the adjacent
countries. The Climate of Italy has been much changed
since the time of Augustus. Horace in the 2^d Ode of his 1st
Book speaks of the horrors of winter as if he himself ^{had} seen them.

26.^{thum.} Juvenal mentions a custom which prevailed among the Roman youth of breaking holes into the ice and afterwards plunging into the Tiber. Travellers tell us, at present it is considered as an extraordinary circumstance to see snow on the ground after 10 o'clock in the morning and the Tiber has not been frozen these many years. What can this change be owing to? It cannot be attributed to the increase of cultivation in Italy itself. The soils of Italy are much the same as it was two thousand years ago, and indeed many spots which are known. The time of Augustus to be fruitful gardens are now covered over with woods, and these remain now in the same situation as formerly. It appears then to depend upon the cultivation of the country to the northward of Italy and particularly of Germany which in the time of Augustus was entirely uncultivated. This effect cultivation produces by absorbing the moisture of the earth & thus preventing evaporation which produces cold. The diminution of water leaves an excess proportion to the degree of cultivation. Thus, in Pennsylvania the creeks and mills ponds have been much lessened since cultivation has been increased. Some hills which formerly went the whole year now will go but six months and others formerly valuable estates have from this diminution been turned into commons.

It is probable that a change of climate similar ²⁴
to that which Italy has undergone will take place in these
middle States. Any surprising change has already happened
Posturly will scarcely believe that a road was formed upon the
Ice of the River Delaware from one State to the other and used
for many weeks by carriages; that and an ox was roasted
on the frozen River to which thousands were spectators
and some timid ones partook of its flesh.

We now proceed to speak more particularly of
the Effects of Heat. —

We shall speak of heat only as a simple quality and shall
speak only of its effects on simple bodies. Animal fugitive
instances being composed and decomposed by heat; and
on this acc't are not properly comprehended when we are
talking of the general effects of heat. —

Heat always produces one of the four following effects;
Expansion, Fluidity, Vapor, Ignition. —

1. Of Expansion —

All bodies are extensible by heat except one which shall
be mentioned hereafter, we shall mention two or three facts
which prove this

All matter may be comprehended under one of these
three heads 1^o Solids, 2^o Inelastic, incompressible Fluids

3 Elastic and compressible Fluids -

Experiments prove the expansibility of facts of these - The
Solids are expanded by heat, is shewn by an iron cylinder which
when cold will pass through a bore or ring, that will not do
it when hot. This may also be observed in bolting doors which
will be difficult when the weather is hot, but after a few hours
nights the bolt will pass in with ease. The variation of Clocks
hatches depends upon the metals of which they are
composed being expanded or contracted by heat or cold.
That inelastic incompressible fluids are expanded by heat
or cold is shewn by pouring Spirit wine into a glass
immersed in warm water. The spirit will rise rapidly
and take up more space than when cold. It will return
to its former space by removing it to a cooler temp.
return. That elastic compressible fluids are capable
of expansion by heat or cold, by observing, that, if
bladder with a small quantity of water in it, is placed by
a fire, and suffered to continue there for some time, the air
will be expanded so as entirely to fill it, and sometimes
burst it. Expansion and contraction are always the conse-
quences of heat and cold. If iron be immersed into molten
tin round neck less, and diffuses in a narrow tube
much larger than before. Different bodies are differently

expanded by heat, what this depends on we 29.

Know not. In general we find the densest bodies, ceteris
paribus, expand least. This, however, is not always the case
for some metals expand more than glass. An Instrument
has been made for discovering the degrees of heat ex-
pansibility in different bodies, called a Baryometer.

By this a French Academician has constructed a Table
of the different degrees of expansibility in different bodies
This may be useful to artist in making new machines.

Some artists have availed themselves of these experiments
Home in making large brewing Tubs, casks &c. The
Miller heats the iron hoops red hot before they are applied
and in that condition puts them on the vessels. By this
they apply more closely and expell the vessels more forcibly
from any mechanical force that can be applied.

The same thing is practised in making the Mill stones
which are commonly called the French Burns. They are made
of a number of small stones cemented together with Plaster
of Paris. The heat, contracting on growing cold, renders
the Burn more compact than they could be otherwise
made. Water is almost the only body in nature which
is an exception to our general rule, and resists the contracting
power of cold. This fluid rather increases them diminished
in Bulk when converted into ice. In order to be assured

30. At the first of the last, Mr. Boyle put some water into a tube three inches in diameter and on it a weight of 700 lbs. when exposed to an intense cold the water was not frozen, than it was so enlarged that the weight placed upon it was raised considerably. In like manner Mr. Huyghens heated a Cannon by filling it with water and then exposing it to a cold below the freezing point, producing of this mighty effect the expansive power of cold on Water. Muschenbroek computes the resistance of iron to be equal to 2000 vol. and says the water increases $\frac{1}{10}$ in Bulk. The Florentine Academicians put some water into a spout of brass one inch in diameter, and exposed to a freezing medium at first the Spout was so strong that the cold had no effect on it, but upon freezing bent it off, it was burst with violence by the expansive power of the ice. From hence we learn why gentle rains succeed by frost, so greatly saturated Earth, for the moisture insinuating itself into the earth, freezing therefrom by its expansive power, cumbles the earth into small pieces, this mellows the ground and makes it to be more easily penetrated, by the roots of plants and the continuity, the last of which not a little promotes vegetation. Hence also we learn why pavements break soon after a sudden thaw, why unoccupied houses mould away gradually after a long and cold winter -

and why Conduits pipes are so frequently burst
after a cold winter. This is from their running too near the
surface of the earth, so that the frost has access to them &
freezes the water in them. Philosophers have been puzzled to
account for this increase of bulk. Horning thinks this
expansion is in consequence to the air contained in
it, which he says may be seen in the form of bubbles
in the most solid lumps of Ice. But I would object to this
1^o that it is the uniform effect of cold to condense air and
not to expand it. But viewing this consideration,
2^o Mairan at Muschenbroek after depriving water
of its air, upon exposing it to cold found that it was
still frozen and expanded as before, and with the same
appearance of bubbles. 3^o Dr. Hales has put the matter
out of dispute; for, having put a piece of ice under water he
pierced little holes into these bubbles and found that no air
rushed out quickly or with any force, which would have contained
by such the case had there been any present, especially
if in that state in which Horning supposed it to be. Mairan
proposed an opinion of his own, and attributed it to the
strong tendency which the particles of water have upon their
conversion into ice to contract their angles of 60° . This
seems to be, can 1^o true. The appearance of ice through
and angular 2^o from the resemblance to snow, which is

32. is vapor frozen in the air. This form of snow has by
some been attributed to saline spicule. But this cannot
be the case. As snow water has been found by Mr. Mangat
of Preston to contain no salt but to be quite pure, as
this is the case, it affords a strong presumption in favour of
truth of this hypothesis of Mr. Hailan. Water is another
body that resists the contraction of power of cold. Mr. Raum
has found another exception. He has found that iron is not
particularly iron, expanded upon passing from a fluid to a solid
state form. This has been attributed by artists to a cavity
in the iron which cannot be the cause, as this cavity is
in other metals, which are not expanded by cold. This increased
bulk in iron appears to be owing to the particles touching
at angles and not uniting intimately. Hence cast iron
not so compact & durable as wrought iron. That expansion
in elastic bodies will last long. Mr. Hauentine experim.
does not absolutely prove that water is not in compression.
The compressibility of water has been proved by a late writer
in the Philosophical Transactions. Mr. Canton. Upon
taking off the piston of the atmosphere he found the
water expand visibly and run in the tube. Hence we
may conclude that water in its natural state is more
or less in a state of compression by the superincumbent

Amorphous. The great expansion of this fluid
by heat is rendered evident by the simple experiment
of a blacksmith on an anvil and giving a metal
stroke with ~~h~~ red hot iron. Bodies that are increased
by heat & diminished by cold suffer no alteration in
weight. Muschenbroek says that when metals
are melted they lose a few grains of their weight, which
they recover when cold. But this small difference
in weight appears to be owing to the air above the
melted metal being rarefied. Musch. also tells us
that metals when calcined are heavier than when
in a solid form. Thus 100 lb of lead after calcination
will weight 100. This as well is shewn hereafter is owing
to the absorption of air or ~~oxygen~~ calcinated air.
no bodies contain a definite or certain quantity of
heat, nor do we know how far they may be expanded
or contracted. Some Philosophers assert that to the
air by any means removed of its heat, it would become
as hard and solid as gold.

Expansion leads us to speak

Thermometers

Thermometers are very useful in experiments for
Philosophy & medicine. We shall chiefly observe in their

34. *Structure and use.* The bodies best adapted for the conser-
vation of thermometers are those that are most sensible of
heat. Therefore fluids are chosen, but they have a disadvan-
tage they cannot bear a great degree of heat without boil-
ing or evaporating. This is however in a great measure obvi-
ated by Sir Isaac Newton's calculation of which we shall
speak hereafter. The fluids employed in making Thermome-
ters are Air, Alcohol, Oil, & Mercury

Air is very sensible to heat & cold and was first used in making
Thermometers. Sancatorius's attempt was rude and imperfect
Mr Boyle improved upon him and carried it to some
degree of perfection. From its great sensibility to heat & cold
air answers very well in many cases. But its ex-
pensibility is so great that it requires a very long scale which
is inconvenient. It is also considerably affected by the circum-
ambient atmosphere with respect to moisture or dry-
ness contrary to the thermometer which is not. The air
thermometer is only fit for barometric experiments
perhaps it may answer better than any other. Alcohol
coloured with Cochineal has also been used. This is a good
acc't. It is very sensible of heat, expands readily and com-
presses, but it is inconvenient on one acc't. That it does
not bear great degrees of heat as its boiling point is but
that of water. It has one advantage that it will not change for

Vegetable expressed oils have been used for Making Thermometers. They bear a quantity of heat or cold without boiling or freezing. But at a certain degree of cold they become viscous by growing very viscous. They also always soot the tube so as to render it opaque. Mercury is generally used and is possessed of more advantages than any other. It will not boil until a great degree of heat is applied. Its expansion is not so great as to require a long scale; but it is sufficiently great to distinguish very small variations in the temperature of the air. From this qualities it is best calculated for accurately distinguishing the changes in the temperature of the atmosphere.

We shall now make some observations on the construction of Thermometers.

Mr. Wilson of Glasgow is the most perfect artist in Europe in the construction of Thermometers. From him we learn that the accuracy of Thermometers depends on the following particulars. The stem should be very straight. In proportion to the size of the bulb with respect to the stem will the mercury rise. The larger the bulb is in proportion to the stem the greater will be the scale & the expansion the more evident, but its sensibility to small degrees of heat less as appears from the third law of the communication of heat. The glass of the bulb should be as thin as possible. The bulb should not be quite spherical

36. but rather in the form of an oblate spiribid in order to encase the surface which renders it more sensible as appears also from the third law. Its perfection depends upon the uniformity of the cylindrical tube. It is usually considered as a necessary step wholly to extract the air. But Mr. Wilson finds that the air does not counteract the expansion of the mercury. & that it is therefore unnecessary to extract it.

The bulb of the thermometer should not be too bright, by reflecting the heat the mercury would not rise as as it would do. This was observed by Mr. Batt Wilson son of the former Mr. Wilson. He one day took a thermometer of his own hanging in his room, the bulb of which was very bright, & stood lower than the thermometer in the College. He suspected this to be owing to the brightness of the bulb, & accordingly on dipping it with ink he found that it rose equally ^{11.7.0}. As to the graduation of thermometers, the scale is to be applied after the tube is filled. Certain standard points are upon which are generally the boiling and freezing points of water. We are much indebted to Dr. Newton for his experiments on this subject. He found that the point at which the mercury stood when water was freezing ¹¹ was ¹¹ boiling were constantly the same. The intermediate points

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between these two points is divided into equal portions called degrees. Fahrenheit's thermometer, which is an improvement upon Menter, is at this day generally used in England, Holland & this Country. In different countries different thermometers are used, as that of Réaumur in France &c

In graduating thermometers we should take the boiling point of water in a mean state of the atmosphere; i.e. when the mercury rises 29 $\frac{1}{2}$ inches in the barometer; as when the weight of the atmosphere is less water will boil with a less degree of heat than 212° & vice versa.

By thermometers our ideas of heat are much enlarged. From these we learn that no bodies in nature are so cold but that they contain some heat, and may turn adiabatically. However paradoxical it may seem snow may be rendered colder by the addition of salt.

Heat is a positive & cold a negative principle. It is easy to imagine that fluidity is the natural state of water, but this is a vulgar error. There are many substances besides water which are fluid when hot, but become solid when cold. It is probable that lead & tin would be constantly in a fluid state in the planet Mercury. Our language tends to keep up the vulgar error of cold being a positive principle.

38. and indeed both heat and cold tend to excite positive ideas. To consider heat as a positive principle and cold as a negative seems to be the best way as we know not whence one terminates or the other begins. We are apt to consider below the temperature at which water freezes as cold & above it hot; but water in the same temperature will excite the sensation of heat or cold according to the state of the body. Thus, you see that I consider heat as an absolute quality & derived from the sun: and cold as a negative quality if I may be allowed of expression and depending entirely on the absence of the sun. I shall not however take notice of the opinion of Le Sueur and others that cold is produced by shanty & spicile, but shall shew hereafter that it depends entirely upon the absence of heat. —

There is one observation which should however be made above with regard to the placing of thermometers. They are generally placed in the shade & against walls. They are considerably affected by the materials of which the walls are made transmitting heat faster or slower. The best method therefore would be to suspend them in the air from the ceiling. —

We shall now further consider the history of cold. ³⁹
The philosophers who were sent by the King of Persia to measure
a degree of the earth at the polar circle suffered exceedingly
from the cold. They were deprived of the sun for several months
and were obliged to keep themselves constantly in a close room.
Upon opening their door, the moisture exhaled from their
lungs as soon as it left their mouth was frozen and fell at their
feet in form of snow. In inspiration they felt a disagreeable
sensation of cold in the breast. Spirit of wine froze here.
The mercury fell to 33° below 0, i.e. 65 below the freezing point.
In Siberia the natural cold is still greater. This may be
owing to its great distance from the sea. Professor
Amman tells us that the mercury fell to 155° below 0.
Notwithstanding this great degree of cold, the finest and
rarest plants flourish here. Dr Murray informs us that the
Cotyledon originally from Mexico, flourishes in Siberia.
This will tend to enlarge our ideas of vegetation & may be of
service when we come to treat of vegetable substances.

Dr. Hoerhaau was struck with surprise at a degree of
cold 32° below 0. a more intense cold than this is produced
by mixing snow and aqua fortis together. The mercury
in the thermometer when placed in this fell 72° below

40° below the freezing point i.e. 40° below 0. in Fahrenheit. In Petersburg a more intense cold even than this was produced according to Mr. Braun's experiments. He tells us that Mercury on immersing the thermometer in a mixture of snow & aqua fortis fell 352° below 0. on breaking the tube the mercury was found converted into a solid form. The natural temperature of the atmosphere was at the time 40° below 0. The spirit of wine thermometer at this time stood at 180° at this point the tube generally broke. The mercury fell several hundred degrees. These experiments do not seem by any means to be conclusive. 1. The tube generally broke and part of the mercury escaped. 2. We cannot say it was froze or was converted into a solid form. It contracts suddenly & irregularly with a concave appearance on surface similar to what other metals have when they pass from a fluid to a solid form. 3. The mercury fell far below the degree at which the spirit of wine thermometer stood which was 180° below 0. at this point it contracted immediately and froze suddenly. It is probable that 180° below was the greatest degree of cold in these experiments.

The thermometer points out to us the degrees of heat & cold

col. 2 They teach us the distribution of heat from one
body to another. Thus, take a number of metals, let some
be hot and others cold: place them all together. In a little
time apply a thermometer and you will find it shows
the same degree of heat in all: which we distinguish by
the name of an equilibrium of heat. As all bodies
contain an equal degree of heat. Dr. Proerhaeve & Mather
brooke one of opinion that they did: that a cubic inch of
all substances, such as metals, water, feathers, air &c
contained an equal quantity; but a little reflection will
convince us that this opinion is ill founded: for a hot iron
contains more heat than an equal quantity of wood
though exposed to the same degree of heat. This equilibrium
of heat is not to be known by any fixed principles, but is
to be found only by experiment. A kind of thermometer
is to teach us the degrees of heat above the rank of thermometers
themselves. In order to do this, to find the heat of sand
hot iron for instance, we throw a piece of iron into a certain
quantity of water: from this we may easily find the heat
contained in the iron. For, by observing the diminution of
the water before the immersion of the iron, & then finding
how much heat the water has gained, we may tell pretty

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putty exactly how much heat the iron contained.
To do this first compute the quantity of smaller contained
in the iron. Then find the quantity of water e.g. if the iron
contains a cubic inch, find how many cubic inches
the water contains. Afterwards multiply the quantity
of heat which you find the water has gained, by the
number of cubic inches it was found to contain, & this
gives the heat of the iron. What confirms the truth of this
method is that it corresponds with the method used by Sir Isaac
Newton for discovering the same thing. This Philosopher
after the heated substance became somewhat cold,
applied the bulb of a thermometer in a cavity which
formed in it. Lastwells noted the degrees of heat it lost
against time. From this he calculated backwards, & then
found the degree of heat in the body when first taken
there. All use of thermometers is to find the time
which bodies take to heat & cool, & in what proportion
they lose & receive heat. To this accurately it is necessary
that the heating & cooling causes should be the same.
Hence the body should be exposed to a current of air,
for when this is not the case the heated air is accum-
ulated about the body, & hence it will not cool so fast.

as it otherwise would. We may however explain the ⁴³ reason why still air appears hotter than air in motion. When the air is in a state of rest it receives heat from our bodies, & accumulates it around them; but when it is in motion, it carries the warm atmosphere from around us. Hence a windy weather seems the coldest. It is not colder, as you may be convinced by taking a pair of bellows & blowing against a thermometer, when the mercury in the tube will not sink in the least, on the contrary it will rise; for the heat generated by the friction of the wind against the tube, is sufficient to cause this ascension.

We may also in the same manner explain why ice when blown upon, is melted sooner than in still air viz. by the cool air around it which would otherwise remain there, being carried off its place constantly supplied by warmer air.

We come next to speak of the second general effect of heat viz. —

2. Of Fluidity —

Fluidity in all bodies is in consequence of the action of heat. Many reasons concur to establish this opinion

At. ^{44.} assertion. We find that many bodies naturally solid
 become fluid by being exposed to heat; & on the contrary
 others that are naturally fluid become solid by cold.
 Spirit of wine & other do indeed remain fluid in any degree
 of cold which has been as yet produced, but these no doubt
 but they might be rendered solid, could not them of
 sufficient quantity of heat. Mercury which was for
 eily thought to remain constantly fluid, has lately
 rendered solid by cold. There are some substances in
 nature, as certain earths and stones which however
 been made fluid by heat; tho' this is no argument
 their being absolutely insusible; for there may be a
 degree of heat them we are yet acquainted with. From
 experiments that have been made with lenses, it is
 probable, that a lens might be so constructed as that it
 melt the hardest bodies in nature, especially if such
 substances were added to flux them. By a late acc^d. we
 are informed that the Bonnian Academicians have
 found a diamond by a particular burning glass. The
 opinion of fluidity being always the effect of heat is denied
 by Buschunbroek who asserts that water is naturally
 essentially fluid. What its freezing is owing to certain
 extreme

extraneous matter existing in the air which is called ⁴⁵
 sanguiferous particles, & introduced into the water. It produces
 another proposition in support of his opinion. I shall take
 notice of these separately —

1. That water remains long at rest, or when kept very quiet
 the temperature of the air is below the freezing point
 does not congeal till agitated; it then immediately freezes.
 He thinks by agitating or shaking the water that some
 foreign body is introduced & more intimately mixed
 with the water. This may be owing to the water being
 something warmer than the surrounding medium,
 from parting with its heat slowly. The agitation may
 occasion some evaporation & disengage the small
 quantity of superabundant heat. —

2. That frost will continue sometimes at 36° & even 18°
 of Fahrenheit's thermometer. This we cannot deny as it
 has been observed by Wolff in Germany & Beaumur
 in France. This may have been owing to the long time
 it snows before receiving heat or melting; and it is
 probable the thermometer would have stood at 32° near
 the surface of the earth, & that the air above was somewhat
 warmed by the sun. The difference in the nature of the soils

46. miles or. which they lie will also have a consider-
effect. Thus when lying on a sandy soil, snow soon-
melts when. or a cold clayey soil will continue frozen
days.

3. He deserved to see a snow when the mercury stood

30° or two degrees below the freezing point. This would
dew. It might be owing to a considerable frost preceding
in freezing, water pants with its heat as we shall see by
It might likewise be owing to the thermometer being
against a wall, that being along time in communia-
or receiving heat, which is generally the case;
thus snow or ice might lie on a warm sandy soil.

4. That there is frequently a sharp frost on vegetables, straw
straw, light leaves when no ice can be perceived on
This is to be accounted for from the yth few of the com-
munication of heat viz. That the surfaces & bulk of bodies
being given they lose or receive heat in proportion to
quality of the matter. This frost is deserved or rendered
bodies only —

5. He often deserved frost in April may & June, after very
warm days, & boldly pronounces that this could not be
to water being robbed of its heat. This may be accom-
plished from evaporation producing cold. Such transitions

are very common, and warm days are very often
succeeded by cold nights. 47

6. That frost is frequently observed in the southern, tho', never
are now at the same time in the northern countries of
Europe. This might be accounted for by the vicinity of these
northern countries to the sea, or to their being surrounded
by water, which tends to make a country warmer.

7. That the quickness of freezing in stagnant water
is not proportioned to the degree of cold. This depends upon
the quicker or slower motion of the air. When the air is
in motion, the warmer will be carried off, the cold air supply
its place. Thus the water will be soon rendered of its heat.
The quickness of freezing is in a ratio compounded of the degree
of cold and the agitation of the surrounding air.

8. That a mixture of salt and snow placed over the fire will
freeze water placed over it, which Muschenbroek thinks is
 owing to the figurative particles passing from the mixture to
 the water. This is by no means a suspension. The cold
 produced by the mixture is so great as to freeze the water
 long before the fire can extend its heat to it.

9. Aqua fortis, or nitrous acid when joined with ice produces cold
 when mixed with water, heat. Taught to have been

remembered

48. remembered that ice & water possess very different properties, & in account for the cold evolved in the former case, & the heat extracted in the latter; without bringing in the fugorific particles. —

10. We often times during the night see no hoar frost or ice on the ground, but after the sun rises we observe it covered over with crusts of frost. This is undoubtedly true. Muschenbroeck in this case supposes that no fugorific particles exist in the air in the night time, but that they come in in the morning. This may be owing to the rays of the sun occasioning evaporation, & that through cold. The cold in the night may not be sufficient to freeze water, but so near is that when evaporation takes place the cold produced will more than counterbalance the heat of the sun; consequently congelation will take place. We shall hereafter shew the connection between evaporation and the generation of cold. —

11. Ice water Muschenbroeck observes is found until hoar frost. Boiling water supposes dissipates the fugorific particles. But this is observed to be different by others. By hard water I mean such as will not easily dissolve soap, or boil sugar up. The hardness of snow or ice water is very transitory.

and owing to its extreme coldness, for when we descend it is
as soft as rain water. — 19.

12. He says that the inhabitants of the alps are afflicted with
a disease called guttulatum (qui guttulatum
invenitur in alpibus: Juv.) which he attributes to their
drinking snow water impregnated with these imaginary
fugitive particles. This argument has no force at all, as all
those persons who live on the alps and drink snow water are
not afflicted in this manner; neither are the inhabitants
of the andes, who also use snow water as freely as they do
upon the alps. —

13. That all bodies contract by cold except water, which is
enlarged when it becomes ice. What can this be owing to
says Muschenbroeck but to the accession of some fugitive
particles? Ice however is not heavier than water. This he
allows but says it is owing to the extreme minuteness &
subtlety of these particles. He did not consider that a globule
of Antimony Tincor exposed upon paper from a ^{to a solid} lid
to a fluid state. Can these cooling particles enter into these
substances when they are not hot? No. It cannot therefore
be owing to the accession of fugitive particles
that ice expands is owing as we before have ascribed to a
Crystallization taking place; consequently interstices must
be left —

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Van Swieten in his commentaries on Boerhaave's aphorisms admits this theory of frigorific pecticles. Hence in speaking of that kind of gangrene which arises from limbs being frost bitten, he advises cataplasms of snow or ice which, he imagines, throw useful excrements of frigorific spicula: but this notion is false. A cataplasm kind acts as a stimulus & producer of a vigorous circulation in the frost bitten limb. Van Swieten calls into his assistance the analogy of a frozen apple. He supposes that cold water produces its effects in thawing a frozen apple by attracting the frigorific pecticles which there may be seen in the form of spicula on the surface of the apple. But we account for it thus. The water in which the apple is immersed parts with its heat to it until the equilibrium is produced. The water more immediately in contact with the apple communicates its heat to it more fully & quickly. It therefore is frozen & forms numerous spicula which adhere to the apple. Thus these spicula are not extracted from the apple but formed in the water. Warm water has not the same good effects upon the frozen fruit in to it, for it imparts heat to them & rapidly destroys their texture.

After what has been said we have reason to believe

That fluidity is the natural state of all bodies and that
all substances can be turned into fluids to which we
can apply a sufficient degree of heat. We therefore
conclude that all solid bodies that we see are frozen. It
has been commonly supposed, that the fluidity of water
depends upon the spherical figures of its particles; but
this is by no means the case: for all bodies then must
consist of spherical particles as they all may be turned
fluid by heat.

This difference between expansion & fluidity is that in
the first there is a regular progressive increase of bulk according
to the degree of heat applied; but in the 2^d the transition is
sudden. There are certain points which are called fusing or
coagulating points at which all bodies become solid.
These are different in different bodies; but are very constant
in the same body. There are also bodies that have an inter-
mediate state between fluidity & solidity, as wax, resins &c.
We shall however speak of a few chemical terms. Those bodies
which are solid in the common temperature of the
atmosphere and are capable of becoming fluid by heat,
and afterwards restored to their former state are said to be
capable of fusion. Ice, salts, & metals belong to this class.
Those bodies that do not assume their former appearance

52. but become smooth and transparent after fusion or
 said to be vitrified, or to have undergone vitrification. Both
 classes belong earths, stones, & some metallic calces. And
 when metals undergo this operation it is called scoria.
 Fluidity depends upon the presence of heat in a latent
 state or quiescent state as well as in a sensible state. The
 curious property by which heat divests itself of its
 characteristic mark, that of being perceptible to the
 thermometer or the senses was first discovered by Dr. B.
 He has observed that heat exists in two affinent states. One
 he calls absolute or latent heat, the other sensible. To illustrate
 this he made the following simple but conclusive experiment.
 He took two iron pots of the same size, & heated them
 into the one he put a pan of water into the other pot
 of ice. He found that the water received presently 212°
 but the ice after melting had acquired only 140°. He then
 concluded that 72° must have been absorbed, & become
 latent in the passage of the ice from solid to fluid state.
 The cold generated by the solution of ice in nitrous acid
 owing to the conversion of sensible into latent heat,
 heat arising from the mixture of nitric acid with
 it is occasioned by the conversion of latent into sensi-
 ble heat. From hence we see the reason why Nitre

weather is generally modual before a fall of snow,⁵³
as it must in its formation part with a quantity of its
heat to the atmosphere. And, on the contrary, we see, that
the coldness & dryness of the air attending a thaw, is owing
to an absorption of heat, or the conversion of sensible
into latent heat, upon the melting of the ice or snow.

All fluids contain a quantity of heat in a latent or
quiescent state. The ocean abounds with it; it is probable,
that, by the conversion of this into sensible heat, the earth
will be prepared to undergo the great change at the
general conflagration. Hence we see the Indians are
an avoid of salt as philosophy, when they assert that the
waters of the tempestuous globe will prevent the effects of fire.
So far from this, it is probable that the ocean may contain
in its waters reason to fear that is destined to wrap the earth
in flames at the last day. To begin the dreadful scene it is
only necessary for the great creator to let go the chain which
confines in the ocean its immeasurable quantity of latent
heat.

As we have already considered the history of cold,
and its effects upon some of the objects of Chemistry,
we shall here extend these to one more, viz. animal bodies.

We have already spoken of measuring the degrees of heat
of cold. We shall now mention the methods of preventing the
harmful & mortid effects of cold —

The human body is so contriv'd as to receive an uneasy sensation of cold when the mercury falls below 62° of Fahrenheit, thermometer. This increases in uneasiness as the mercury descends, till it becomes painful. Animal bodies have a power of resisting the effects of heat or cold to a certain degree. Heat lessens and cold increases the action of the causes generating heat in the system, & thus prove the means of obviating their own bad effects. But sometimes the degree of cold or heat are too powerful to be overcome by the efforts of nature. In such cases therefore we must call in the aid of art. And it will be pleasing to the philosopher to enquire how means commonly employed for this purpose, produce their salutary effects; and whether they are too weak we must endeavour to increase them.

The first method we shall recommend is the use of the cold bath. We need not adduce the Indians of this country as vouchers of the utility of this practice. All those who use the cold bath agree, that it renders the system less sensible of cold. Hence it used to fortify children, & by the vigor which it gives to the system, renders them less liable to the effects of cold.

2^d Wearing loose garments of fine wool. These we are apt to imagine are warming themselves; but they are only so from transmitting heat less fully than linen, silk &c. loose garments were formerly much worn by

56 by the Romans & even now by the inhabitants of as being warmer in winter & cooler in summer. They are warmer in winter by confining the perspiration in greater quantity. When the perspiration is carried quickly the body is kept cool. Hence the difference in windy & calm weather. Hence the reason why different persons are so differently affected by the same state of atmosphere, by the perspiration being carried off quicker or slower.

The method is commonly said to consist in avoiding heat & thus hardening the body. This is an universal prevailing opinion, from a supposition that heat increases the sensibility of the system; but from facts that shew not with this agrees in some cases at all. The Germans who are generally almost constantly in warm stow rooms. The heat of which is from 86 to 90 degrees are the most robust healthy people amongst us, & most able to resist the effects of cold. The most Indians bear cold as well as the natives of this country. The heat of climate is seldom under 66°. In Siberia the Russians use a vapor bath twice a week, the heat of which is afterwards plunge themselves into the snow. The heat of their stow rooms is generally 104°. By this

will braver, work her out whole days without coming 54.
near a fire. The coldest of their climate may be judged
from this earth being covered eight months in the year
with snow. That the ground is frozen ten feet deep, and that
the mercury in the thermometer seldom rises for
many months above 0. From these facts is it not
probable that heat produces insensibility to cold?

May not heat & cold produce reciprocal effects in the exhalation
of the nerves of Muskin & assist each other in strengthening
the system? This however only among great degree of heat,
or a moderate degree long continued, which will have
the effect of producing insensibility to cold. Hence
the reason why we cannot bear the cold of our climate
so well, because the heat of our summer is not intense
enough, or does not continue for a sufficient length of time
to fortify us against the change of the winter. Europeans
bear the heat in the west indies better than the natives.
This sufficiently refutes an argument brought in favour of
the slave trade or taking negroes to the west indies.

If a European escape for the first year he will do more work
than several negroes. The country from which the negroes
is so fruitful that almost every necessary of life is spontaneously
produced. The inhabitants therefore live without labour.
Labour in warm climates is not conducive to the health of man

58 It appears that he was not destined for it in these circumstances by the creator. Altho' it is granted that the natives of cold climates bear heat better than those of warm climates, yet it will not be so readily allowed that the reverse takes place. Thus it is the common notion that New Guinea negroes will not bear the cold so well as the natives; but my observations do not confirm this notion. The circumstances that give rise to it may be accounted for by that languor & depression of spirits, which are the natural consequences of slavery, & so their being cold is clear. The 1st method is to keep the feet warm. They feel cold on their first felt, on acc^t of their want of sleep from heat & brain. The Indians seldom feel cold in consequence of sleeping in the open air if they have their feet fire. There are several ways of keeping the feet warm by increasing loose coverings to them. For this purpose the moccasin or Indian shoes are very well calculated. In Canada in 1759 the soldiers who wore the moccasins had not their feet frost bitten, whilst those who wore shoes, & were exposed to the same inclemencies of weather, were afflicted with above mentioned manner. But 2nd if the feet are exposed to the cold so as not to admit of motion, as walking during exercise, it then happens to more than one in company

company. No method used by a Gentleman of the ⁵⁹
Delawen state may be used with advantage. He
attempted to cross the Chesapeake Bay late in the evening;
but was frozen up in the middle of it. The prospect was gloomy,
and there was no appearance of relief. He found his feet
grew exceedingly cold. To relieve this he pulled off his
boots, rested his feet against the seaman's breast, after lying
down in the boat, suffering the seaman to do the same
to him, and covered both with his great coat. After awhile
they fell asleep. He slept all night. The gentleman awoke
in the morning in a sweat, found the ice sufficiently hard
to lead his horse ashore. I have another fact. A Gentleman
was walking to town late at night. He was overtaken
by a very heavy storm of snow, lost his way. He lay
down at the foot of a tree expecting certain death. His dog
came lay down at his feet, as willing to share his fate.
After some time he found his feet warmed well asleep. In
the morning he awoke covered with snow & pursued his journey
to town in perfect health. 3rd walking of the feet in cold water
or plunging them in snow; thus exposing them to an aqualet
degree of cold. The Indians break their splints in their feet

60 into brooks to wash them, when they begin to grow
 I have heard that our celebrated countryman Dr. Franklin
 makes practice of standing on a marble slab when
 to remove the colic of his feet. Cola long continued acts
 as a sedative. A greater degree acts as a stimulus, androuses
 the will to action. In a certain degree cold is for a while
 a stimulant. After a while it acts as a sedative. A greater
 degree will then act as a stimulant. We may all
 have observed that we cannot sleep with cold feet. It
 is a wise provision of nature to prevent us from sleeping
 the sleep of death. If a person can go to sleep with cold
 feet he is not in health. As it is frequently more convenient
 to jump out of bed, it will be sufficient to throw yourself
 from under the clothes.

The fifth method is wrapping up or rubbing the af-
 fected part with a ointment. This is a common practice
 the Danes, Russians, and other inhabitants of the
 northern parts of Europe. The action of this may
 be understood from what has been just now said
 Sixthly. Suppose a person has endured the utmost
 extremity of cold. If he has been so cold & numb, it is the
 common practice to infusions & pour down
 spirituous liquours.

The
 species, & the proportion to man.

The former is in no case to be omitted; yet it will frequently fail, as the vessels on the surface are too torpid to be roused by it. Even if they are roused by it, the internal parts will not perhaps be excited into action. Spirits are improper as they operate slowly. In sommersons however no action at all, owing to the heat; they have been in of taking them frequently. A fact which I have met with may lead to some useful practice in these circumstances. A man in ridingsome distance was so benumbed by the cold as that he fell from his horse. After some time he awoke with violent retching & vomiting. He could say that just before his fall, he had a large quid of tobacco in his mouth, which he supposed he had swallowed; to this circumstance he ever afterwards attributed the preservation of his existence in this world.

There are two facts which it may be proper to explain. 1. why a damp day appears colder than a dry one, when the thermometer points to the same degree of heat. The moisture in the air acts as a conductor and carries off the heat of the body.

62
8. Why the sense of heat in summer is greater on a
cloudy day than the thermometer stands heat at 80,
in a day when the mercury stands at 85. or
90. In the most day the air being already
heated with vapour will not carry off the perspiration
so well as in a dry day.

We shall next make some observations upon
the means of preventing the disagreeable effects
of heat upon the human body.

First. Great regard is to be paid to the situation
construction of houses. In this country when
bunting the South are coldest in summer but
controy in great heat. Most of our cold bray
in summer come from the South west or due west
The cold brays in this situation will be more
easily ensured to you if you have a narrow avenue
leading to your house which will increase the
velocity of the air. This is explained by a law
in hydraulicks, that lessening the channel
increases the velocity.

With regard to the materials of houses stone 63.
seems to be the coolest. The walls must be very thick
whatever they be composed of that the heat may not
penetrate. Houses thus constructed are not only cool
in summer but warm in winter. It is likewise of con-
sequence to exclude the sun as much as possible not only
by closing the window shutters but also the sashes.
It is likewise of consequence to have a chimney in each
room, by which means a constant circulation of air
will be produced. From ten in the morning till four or five
in the evening there is a current down the chimney.
It is then stationary for about an hour or an hour and a half.
Afterwards it changes upwards. From this current through
the chimney it is that the coldest air in the room is
nearst that part. In the chimney the air is of an
uniform temperature throughout. By 10. O'clock the sun
acquires sufficient heat to rarefy the air above. It there-
fore passes into the chimney, & thus throweth air contain-
ing the chimney down into the room. In the evening
after 5 or 6 O'clock the air below being more rarefied than
that above rushes up & thus forms a current up the
chimney. Bed rooms particularly should have

64. chimneys, as it is unsafe to leave the doors, windows open, which we must do if they are without chimneys. I will go further and assert that it is necessary to have chimneys even in cellars, & then are there of considerable advantage 1. for preserving vegetables which will never grow mouldy under the circumstances in cellars. 2^o to prevent scamps, sometimes prove noxious. Such they ferment, that may produce putrid diseases. Another memo of you against the oppugning effects of heat at night is, to lie on that are not soft. Hence matras are proper, which not increase the perspiration. Hence are not so weak to the system. The second method is by an attention to cloathing. Every body knows that the cloaths should be thin in summer. Silk & Cotton are preferable to linen. Facts lead to prove that linen is not so wholesome when worn next the skin as woolen or cotton, especially the finer cannot be changed frequently. The cloths the outer garments are the better hence gowns are preferable to light waded cloaths.

Thirdly by bearing a due regard to diet. An

Animal food conveys heat more than vegetable
as being more stimulant. A late writer supposes
that all the heat of the body is derived from the food
which is taken in, & supposes that animal food contains
it in larger quantity than vegetables. I may be so.
But, independent of this, we may account for the heating
effects of animal food from its stimulating property.
Therefore in summer less animal food should be used than
vegetable.

The fourth method is by paying a due attention
to drinks. In this climate it is impossible in summer
to avoid drinking a great deal. The more ascendent
drinks are the best, as beerage, weak punch &c. All
stimulating drinks are particularly to be avoided;
as strong wines, spirits &c. This is not a new absurd
opinion. I mean that which prevails among the
country people, that spirits fortify the body against
the effects of heat. It is certain that a man who drinks
vinegar and water, keuermilk & water will stand
heat better than a man who drinks his pot of aqua
of spirit every day; for tho by its use he may be
able to make greater exertions for a time, yet

66. Yet this exertion is entirely convulsive so soon
succeded by debility -

Thirdly, tranquility of mind is absolutely necessary
among those who complain the least, suffer least from
Persons of an irritable heart of an unphilosophical
injurious temper, who but sum sum sum con-
tinuing from place to place suffer much more
Persons of solid Stoical dispositions who will
themselves to be cooled by their perspiration.

But if a disease be already produced by the
heat which we sometimes in this city, so
e'en to produce death, what is to be done? Men
are frequently affected in this manner. At the battle
of Monmouth several British soldiers were found dead
who had not the least mark of a wound. Their death
was certainly owing to the excess of heat. This disease
comes on with a faintness, a difficulty of breathing
going along with quasshing. He feels an in-
position to walk therefore will desirous to sit down.
He falls down; his breathing is extremely labor-
his mouth parched; his skin dry; It continues

half an hour, & is not soon relieved the patient dies ^{by}
He may be relieved by simple remedies. Cold water is
the best application. This will succeed even when applied
to the hands or the feet by plunging them in, or by throwing
it in large quantities upon the face & if sum an high
so much the better. The colder the water is the better.
Frictions likewise should not be neglected. For these
means many have been relieved, they will succeed when
applied to horses. Carters or carters who use their
horses with great inhumanity often pay for their cruelty
by losing one or two in a season from the effects of heat.
They often however recover them, especially within these
few years, by the application of cold water. I once saw the
effects of this, when a horse after falling down, from the
violence of the heat, was recovered by throwing 20 or 30
buckets of water upon him. I am not very certain whether
very warm water acting as a stimulant might not
have the same good effects as cold water. I only throw this out
as a hint. I once heard of a gentleman, ^{who} in these circumstances
was relieved by putting his feet in very warm water.

68. We now return to speak of the third general
effect of heat viz.

3 Of Evaporation.

Vapour is a light transparent substance similar to air, of considerable elasticity & expanding & rarefying by heat, & condensing by cold. An instance of the power of vapour is that one drop confined in a small glass vessel exposed to the sun will burst it with violence after some time. From these properties vapour is most exclusively useful in the arts.

One instance will suffice to illustrate this. When in glass blow their spittle into it, which being converted into vapour expands forms with their assistance with small exertion of their breath, the various glass vessels are used. From the effects of vapour the braziers are solicitous to keep water from their traps when in fusion. Vapour, like fluidity, depends upon heat, as it returns to its natural state by abstracting the heat. The degree heat necessary to produce vapour is greater than which is required for the production of fluidity.

There is a difference in the evaporific point, some bodies⁶⁹ requiring more heat than others to convert them into vapour. Some proceed the same fixed & volatile. This turns an entirely relative, as no body has been found out so fixed as to resist the evaporific power of heat.

As the pressure of the air has great influence on evaporation and as it is carried on much more rapidly in a rare than in a dense atmosphere it is necessary to have recourse to the air pump when the pressure is always the same accurately to determine the evaporific point of different bodies. In this instrument water boils and evaporates at 90° . A spirit of wine evaporates and boils violently from the warmth of the hand. From a knowledge of the principles of evaporation we account for boiling. Some say that it is owing to water not containing more than a certain degree of heat; but this is not the case, as water when confined will contain more than 212° of heat. This is the case in Baspins digester when water may be made so hot as to melt lead & tin according to Muschenbroeck. Baspins digester was first used by physicians to extract a rich soup from bones. This dish is now laid aside as it is not worth the trouble of preparing.

yp. Thus having derived boiling from the expellition of air. But the air would be soon diffused. Why then should boiling continue as long as a drop of remains? The true reason is that the liquid must be in contact with the fire is raised or converted into vapour, hence ascends in the form of bubbles, which appear on the surface of the water. That water is not so hot after as just before boiling is owing to the evaporation which then takes place. The connection that subsists between evaporation & generation of cold.

The vaporis point is so far from being the common place of bodies, that somehow it lies below the point of fluidity: in some substances assume the form of vapour, before they become fluid, even in the common temperature of atmosphere; such for instance are camphor, volatile salt, arsenic & zinc.

We shall here explain a few chemical terms. Evaporation is when the volatile parts of a body wish leave the fixed behind as in the making of sea salt. Distillation and Sublimation are the reverse of the former. These are instituted to remove the volatile parts

When the product is fluid it is called Distillation. 71.

When it appears in a solid form we call it Sublimation.

Products which are are called Flowers or Sublimate according to their appearance.

Is heat capable of producing vapour in all bodies? Earths seem to be the only bodies in nature which resist the evaporating power of heat. Even gold the purest of metals which Mr. Boyle kept in sun for two months & unmercifully incapable of evaporation, has been made to lumen by the concentrated heat ^{in the focus} of a burning glass. We are more acquainted with the greatest degree of heat that may take place. Let us therefore suppose that the resistance of the earths is owing to the insufficiency of the means employed; Let us conclude that there are no bodies in nature that are proof against the evaporative power of fire.

The evaporation mentioned above which takes place in the common temperature of the atmosphere in some bodies as Camphor & arsenic &c. is called spontaneous. The vapour produced by it has no elasticity & diffuses from that of water produced by heat. The greater the surface exposed the greater will be the evaporation. Thus, a wet sponge hung up in the air soon becomes

12. dry, by reason of the great extent of surface
 when the vapour is confined evaporation will take
 place only to a certain degree -
 Vapour is always produced by heat, & when thus
 abstracted is again condensed. From this we see
 for the drops of water that are frequently observed
 lying down the sides of such vessels as contain cold
 as the vapour contained in the atmosphere is condens'd
 on these vessels by the coldness of the contained water.
 This is illustrated by the condensation which takes
 place when we breathe on a bottle of cold water.
 This is also observed on the windows of houses
 on cold dry mornings. Here also the frost
 is deposited on houses & rocks in the midst of a
 forest the wind that brings the thaw is generally loaded
 with vapour, which meeting with the cold house
 rocks is condensed. On the same principles we account
 for the production of dew, rain, &c. The ground being
 warmed during the day by the sun, gives up a
 quantity of water in the form of vapour. This vapour
 is afterwards by the coldness of the air returns to the
 earth in refreshing dews

The rising of misty fogs from low marshy places 73.
depends upon the same cause. The unwholesomeness of
fogs is owing to their arising from putrid stagnant
water. Hence we also see why vapours rise so copiously
from a hole broken in thine, from the heat of the water
contained under it. Water in the same manner rising from
mines the ocean &c. forms clouds which when condensed
descend in the form of rain or in gentle showers: when
congealed in the air in the form of hail & snow: and after
answering the purposes for which it was designed is poured
back into the bosom of its parent ocean.

Spontaneous Evaporation has been accounted
for in different ways.

Mr. Derham & others say it arises from the air in the fluid
being expelled by the heat & carrying with it some of the
fluid in the form of bubbles — This argument is from water
rising in the air pump, when the pressure of the atmosphere
is taken off. But we know that the evaporation continues
while a drop of the fluid continues, & since such bubbles
could not be raised into the air.

Gravesend & Huskisson Brocks say that it only requires

At a smaller degree of the boiling heat to bring about ^{partic} evaporation. But this cannot be the case, for then the ^{water} vapour would be elastic. But we know that spontaneous ^{water} vapour is perfectly inelastic. Some more provably ^{also} that air acts as a solvent upon fluids, & thence causes ^{water} to evaporate. In many respects there is a resemblance ^{water} between solution & evaporation. 1st Solution increased by heat. The same is the case with respect ^{water} to evaporation. Thus boiling water will expel ^{water} quantity of salt, which it cannot retain in solution ^{water} when cold. In like manner, by the action of cold ^{water} certain vapour will be condensed & will recover its former ^{water} 2nd Solution is increased by increasing of the surface ^{water} covered. This same takes place in evaporation. 3rd Agitation ^{water} quickens solution. This is also observed in evaporation ^{water} which is much promoted by the agitation of the ^{water} But evaporation can be carried on in an expander ^{water} receiver quicker than out of it, & the more perfect ^{water} the air is exhausted the sooner will the liquid ^{water} Evaporation seems to be a diffusion of the ^{water} particles

particles of water in air. Windy weather appears to promote ¹¹⁵ evaporation by dispersing the vapour collected over the water & thus giving opportunity for more to rise. Hence roads that have been wet by preceding rains are dried much sooner in windy weather, than in a still state of the air.

It is now fully established that cold is always generated by evaporation. This doctrine was first started by Mr. Haiman & enlarged upon by Mr. Pickman of Pittsburgh. Dr. Cullen was the first who by many conclusive experiments fully ascertained the matter. Dr. Franklin has since enriched it with many practical observations. As this is a discovery of some importance in Chemistry & Medicine I would advise you to peruse Dr. Cullen's paper on this subject in the Physical & Literary Essays of Edinburgh Vol 2. Page 115.

We shall illustrate this truth of this by Dr. Cullen's own experiment. A thermometer dipped in spirit of wine & suspended in open air will cause the mercury to fall several degrees & it will continue so to do while the glass is wet with

76. When it begins to evap. Am mercury to return its former height cupulated dipping will produce more rumen & less sinking of it. The sinking of liquor in the tube would be hastened by blowing it, or by moving the thermometer nimble to the air. Dr. Cullen by the application of Spiritus descreas'd the mercury sink from 44° to below the freezing point. With ether in vacuo it sunk from 50° to 20° .

The cold produced by evaporation is of great in many places, in the warm eastern countries. Thus the inhabitants of India, Ceylon, Burm, Egypt have cups composed of an earth so porous as to let a good deal of what they contain to transude. In evaporation the contained liquor is effusively cooled. In these cups they cover with a red cloth in honour of their Sama. Mr. Rowell had a cup of this kind which was given to him by a physician who lived 20 years on the people. In Egypt whole towns are supported by manufacture of these cups. Those who travel the deserts of Arabia suspend their liquids under the

bulles of their horses, or other beasts of burthen 177
in up hills constrained on purpose in order to preserve
them cool from the evaporation which the motion
of the animal occasions. This is an excellent cor-
trivance where springs & streams of water are scarce.
The custom of cooling liquors by evaporation is not
confined to the eastern countries; but is practised in
the several & in many parts of the W. Indies. They cool
their wine by wrapping a wet cloth round the bottle
containing it & then exposing it to a current of air.
that the evaporation may be quickened by carrying off
the vapour already formed —

The cold is proportional to the evaporation which
takes place. Again this is carried on more rapidly
in a denser than in a denser medium & is consequently
more remarkable in an air pump. Other vapors
so quickly in vacuo that a tea cup full of it placed in
a bowl of water will be converted into vapour before
the water in a few minutes on the hottest day. From this
we may be enabled to understand a fact mentioned by
Dr. Bussell in his Natural History of Hippo

yo. That during the time the southern winds blow
are extremely warm, the water that surrounds the place
is cooler than at any other time. This must be owing, in the
natural promoting of evaporation, a wind carrying off the
vapours as fast as it is formed. Hence we may al-
most tell why low marshy grounds are cooler than
dry lands; why the cultivation of a country, ^{litter}
raising of grain renders a country warmer, as the
moisture of the earth is absorbed by the plants and
enters into their composition instead of instead of
evaporation; why it is dangerous to sit in a
room, ^{litter} more particularly if at the same time
is a large fire in it, as this must increase the natural
evaporation: why sprinkling the floor with
or water produces an agreeable coolness; ^{but}
most weather, especially if attended with cold
productive of febrile diseases. A more curious
matter than either of these is, that, no matter
the human body is, all climates in all
countries is invariably between 96° & 100° yet the
of many climates where inhabitants enjoy

very good health, very considerably exceeds them 77° degrees. Dr. Lining of Charleston, S. Carolina, tells us in the Philanthropical Transactions, that he often observed the mercury stand at 126° and Dr. Sheldar in his practice of physic informs us that in Syria the mercury frequently stood at 111° and that the inhabitants not only lived but enjoyed good health. The heat then must have been carried off by perspiration & sweat, as the discharge from the surface of the human body is always proportional to the degree of heat; the cold produced by evaporation is always proportional to the perspiration. Hence the natives in the most interminable summer suffer less when they sweat most profusely.

We are next to treat of the fourth general effect of heat viz

A. Of Ignition.

This effect of heat is more universal & is produced with more uniformity than the three others. It is to be seen at all times, in all bodies, in all places. All bodies that emit light & heat appear luminous

on their surface are said to be ignited. All bodies when ignited contain equal degrees of heat. It is difficult to determine when ignition begins, as bodies will appear ignited sooner to those who are acutely than to those persons whose organs of vision are less acute. Therefore opinions on this subject will be different. Dr. Martin supposes that a hot iron contains more heat than burning wood; but this is false. Iron may be rendered hotter even after ignition. Iron according to Sir Isaac Newton whose calculations may be depended upon) is ignited at 635° but will admit of a still greater degree of heat to 1041° . Mercury takes upwards of 600° to make it boil. The boiling point of mercury is nearly the same as in which it is ignited. This confirms the truth of the observation as we know that the point at which all bodies ignite is nearly the same. Boerhaave asserted that metals will not become any hotter upon melting. This however from an supposed analogy of all metals. But this is not the case. There is no body in nature but may be rendered hot, or become ignited.

ignited if the vapour be confined or prevented from ^{81.} escaping. Even water may be ignited with a sufficient degree of heat if the vapour is confined. Water in Basons digester may be made so hot as to melt lead & tin which melt a few degrees from the point at which iron ignites. The vapour of an when immersed into and hot furnace appears of a bluish colour which is owing to its being thus ignited -

Having thus considered the General Effects of Heat before we enter upon that of Mixture we shall say something of

Inflammation.

Inflammation is confined to one class of bodies which are from thence called inflammable. The effects of heat on these bodies differ from those on other bodies in the following particulars.

1. Inflammable bodies suffer changes or diminution of weight.
2. Inflammation is produced in some bodies from slight causes.
3. Bodies when inflamed emit light heat during inflammation
4. All bodies after inflammation become some recrement.

82 document which is inflammable. I do not
see except spirit of wine which was called the
potulum ignis by Boerhaave or sulphur ^{of}
wine be burned under a considerable quantity
of water will be collected. Sulphur may be collected
a diffusant form after burning in nearly as great
a quantity as before inflammation

5 The pressure of air necessary to prevent & continue
inflammation will be carried on according to
purity & density of the air; hence it is greatest in cold
weather. Air feeds flame only to a certain degree
simply fresh air is supplied inflammation is
carried on. Some have supposed that air feeding flame
to a certain degree only is owing to its becoming
surcharged with vapours from the inflammation
But this is not the case. Many vapours rather feed
extinguish flame. Sir Isaac Newton found out
the nitrous acid to produce flame when mixed with
inflammable bodies suppose it to be owing to
nitrous acid in the air. But no nitrous acid
exists in the air, and it would be necessary ^{that}
there should be a vast quantity as some very
cold some

at the same time. It appears to be owing to a ⁸³ combination of the Principle of Inflammability or Phlogiston with common or atmospheric air producing fixed, or phlogisticated air

Air then supports and bears flame. The conical form & irregular manner in which flame ascends is owing to the action of the air. It comes with its substance which we call soot. This is a combination of O_2 with a small quantity of some portion of the inflammable body & a small quantity of volatile salts. That it contains O_2 is evident from its taking fire so readily. Soot is produced in largest quantity when the inflammation is most rapid.

The principle of inflammability is never destroyed, but always exists under some new form. If this form is in bodies it may be communicated to bodies which have lost it from others containing it which have not the same balance. Thus by adding charcoal to the nitric acid sulphur will be formed. This same thing takes place if we add any other substance containing O_2 . This principle is called by Macquer & other Chemists

84. Chemists Prologiston. but let us with Dr. B. in the
to call it the principle of Inflammability. By the
Principle of Inflammability (A) we mean that, ^{existing} ^{in the}
principle which produces flame or is the cause of infla- ^{gora}
mation when combined with other bodies; ^{not} ⁱⁿ ^{itself} ^{itself}
flammable or capable of inflammation by itself ^{from}
a separate state. ^{thus}

You have now seen the general effects of heat on the
the objects of Chemistry. We might here make some
descriptions on its astonishing power.

As the grand principle of activity in the sun
The most solid bodies are expanded by heat. This ex-
panded power is so great that to it some philosophers have
ascribed the swelling of the cork at the equator, the
ascent of vapour & all the blessing of heat, rain &c. &c. are
attributed to it. The flame which so comfort-
warms us in winter & is so useful in our kitchens
is occasioned by heat. It is the source of life
to plants & animals. When heat is withdrawn
they die. The beauties of vegetable nature fade
upon the return of it they again flourish.

in their original splendor. Animals also over their
existence to heat. Thus, hawks, ravens &c. lie in a
torpid state during winter. But when they feel the invi-⁰⁵
gorating beams of the sun are again called forth to life
action. It not only recedes life when about to depart
from its proper; but also in some cases gives it the spring.
Thus in the incubation of eggs, when about egg¹ is con-
tinued for a proportionate time a perfect animal is
produced. How wonderful are the operations of her!
How wisely are they regulated by the superior Faculty! Night
and summer! We cannot how sufficiently admire the
goodness of the great Creator in preserving the order of the
universe! Should the laws of gravity be suspended
she could forget to revolve in her orbit, how terrible
would be the consequences! Should she withdraw
herself but for a moment from the sun all nature
would be locked in chains. Water that teems of the
universe would cease to flow. It would forget to run in
rivers & mountebanks to distill upon the earth in refreshing
showers. Plants would die & if itself in
animals

all animals would soon be extinguished. In a
few days the air and every other fluid would become a dense
solid mass. On the other hand, the effects would be equally
dreadful, were the earth to approach too near the sun.
The air would lose its elastic force, rivers would overflow
their banks; the parched earth would cease to afford
nourishment to plants and animals; all nature
would resume its primitive chaos.

Of Mixture.

The effects of mixture are more confined than those of the
but it is the second active principle in nature. The mixture
it is difficult to point out an operation in nature
forward without discerning mixture.

By mixture we understand the union of dissimilar bodies.
This is very various in nature & in appearances. Some
bodies unite homogeneously; some but for a short time
some produce heat; some cold; some unite with
insolubility producing effervescence; some unite
silently. Of each of these we shall give an instance.

1. Salt water unit homogeneously & insinually

Water & oil unite only for a short time: the ⁸⁷ water soon subsides & the oil floats on the top 3 Vitriolic acid and water generate heat 10° or 15°. A Nitre & water produce cold; 10° or 12°. 5 Sp. Sal ammoniac & any of the acids rush together with violence & impetuosity. Some effervescence takes place, that is, they undoubtly fumus. This is owing to the extrication of fixed air.

Decumulation. Fermentation as distinguished from Effervescence, The former is produced by the boiling of fluids; the latter is a gradual tendency towards an assimilation of dissimilant bodies with little noise & small separation of air &c. Camphor & Spirit of Wine unite slowly & intemately without any sensible motion. —

Mixture is divided into Chemical Mixture
Solution and Diffusion.

1. Of Chemical Mixture.

Chemical mixture is a union of a menstruum and a substance as of Sp. Sal ammonio & Vitriolic acid.

The following circumstances are necessary to constitute chemical mixture. 1. That the bodies after mixture possess none of the properties they had separately. test.

88. but form a tertium quid. 2^d That there is a generation of heat. This invariably accompanies. 3^d Only two bodies can be united at one time. 4. Bodies which were before volatile become more fixed by mixture. These marks of Chemical mixture are not unexceptionable, for it is often difficult of characterising it.

Of Solution.

Solution is when one body is so intimately united or suspended in another that they appear homogeneous. The body to be dissolved is called the Solvent that which dissolves it, the Soluend or Menshra. The last term arises from the notion of the ancients, who in most cases allowed a room for the solution, imagining that it required that space of time both under the solution - perfect. Solution differs from Chemical mixture in the following particulars.

1 In Solution there is no change of property. Thus a grain of salt dissolved in water is salt still, tho it is reduced to an infinite number of minute particles, & may be recovered in its former state. 2 It is not attended with a generation of heat, but always of cold e.g.

Nitr.

Nitre dissolved in water produces cold.

89.

3. In solution more than two bodies can be united: thus we may dissolve nitre in the same water in which common salt is held in solution. It will now help render it homogeneous. After a time has come saturated with one body we may add another which will also take up. The fluid will be now enabled to suspend more of the first. Thus after water has dissolved as much common salt as it is capable of containing in solution, we may dissolve in it a quantity of nitre & it will then dissolve a fresh portion of common salt. This appears to be owing to the introduction of a quantity of water in the nitre.

Solution has received various appellations according to the manner in which it is performed.

1 Maceration is when the virtue of the solid is extracted by a heat below that of boiling water.

2 Infusion is when the fluid at the boiling point is poured on the solid & suffered to remain on it till cold.

3 Decoction is the continued heat of application of the boiling heat to the substance whose virtues we wish to extract.

8 90. 4. Digestion is when applied above or below
the boiling point is continually applied to the
point salient; but it is more properly turned so when
carried on in close vessels and above the boiling
5 Circulation is, when the vapour heat arises
condensed, returned again to the vapour in a liqui-
form, to act upon the body.

6 Deliquescence is, when a body is dissolved by
exposure to the air, which we know contains a portion
of water always in it, even in the hottest climate.
O. Tantari for deliquium is prepared in this man-

7 Amalgamation is the dissolution of any
in mercury

In Solution the following circumstances influ-
the operation. 1. Bodies dissolve quicker in proportion
to their surfaces. Thus metal may be dissolved quic-
kly in an acid dissolving metals by being beaten into
2 Solution is quickened by agitation, by which a greater
proportion of the ministrum is applied to the body.

This spirit of wine found gently upon water will
on the surface without any appearance of union

union. But on state of the parts will so 91
intimately unite them together that they will remain
so for many years.

3 Solution is quickened by heat. Some of the
heat will be taken up. Thus water which applies to
its weight of nitre when cold will dissolve a much
greater quantity of it when heated. How great the
power of heat in increasing solution may be and
understood from what is said formerly of Papin's Digestor
4 Solution is assisted by the contact of air. Air is so
necessary to solution that some have imagined that all
bodies owe their fluidity to its presence. If Copper & S.
Sal. ammoniac are kept excluded from the air they
have no effect on each other, but the moment the air
comes in contact with them they act on each other.
The action of air in solution is further evident in this
that if any corrosive substance be kept in copper vessels
they will be only affected when the air comes in contact
with the air at the surface. If water saturated with nitre
be put under an inverted receiver the nitre will im-
mediately fall to the bottom.

Of Diffusion.

92. Diffusion is sometimes called nutrimental, &
to distinguish it from the true solution we have been
speaking of. Diffusion is distinguished from Solu-
t. I. P. having a turbid appearance. 2. is not being pur-
e, but 3. by depending entirely upon agitation. Thus
united with water is said to be diffused in it. By rust the
iron subsides. The red particles of the blood are diffused in
the serum. Coagulated lymph in the blood vessels, and
proved by microscopy spontaneous separation which
takes place after bleeding. It is of great impor-
tance to be perfectly acquainted with these terms, as nothing
more than want of medical knowledge than can be
of them.

Of Decomposition

Decomposition consists in the separation & division
of the constituent parts of bodies. It is performed by
Evaporation Crystallization and Evaporation.

Of Precipitation.

Precipitation is when to a solution of a body in any
medium another substance is added which has a greater
attraction for either two of the substances than they

have for each other, with which it will combine. The ⁹³ first body will be separated. The body here added is called the Precipitant. There are four different ways of Precipitation.
1. Of the dissolved body alone. i.e. when the precipitant unites with the menstruum. The dissolved body falls to the bottom; as is the solution of marble to the vitriolic acid or is added some alkaline salt; it will immediately unite with the acid, while the marble falls to the bottom in the form of powder. 2. Of the dissolved body & precipitant. i.e. when the precipitant is attracted more strongly by the solvent than by the menstruum. Together with it falls to the bottom. Thus by adding to a solution of marble in the Nitrous acid a little vitriolic acid the marble

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Notes taken from a Course of
Lectures
on the Practice of Physic
delivered by Benjamin Rush M. D.
Professor of Chemistry and Practice
of Physic in the
University of Pennsylvania
November 1. 1700

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That branch, which treats of the causes & cures of diseases, is called the Practice of Physic. Health is that state of the body, in which the functions are performed with difficulty, or inconveniency. Diseases are varied in different countries, and in different ages.

Causes are divided into remote, predisposing, occasional, and proximate. To illustrate this, Cold or Contagion may be the remote cause of Pleurisy, Pectoral predisposing cause of Hernia, while violent exercise may be the occasional. Spasm is the proximate cause of Pleury. The remote cause of Gout is intemperance; the predisposing an hereditary disposition; the occasional may be either taking an extraordinary quantity of wine, or a strain in the ankle, & its proximate spasm.

A symptom is, an apparent deviation from health obvious to our senses; it must be apparent, or it cannot be a symptom.

Symptoms are divided into three sorts; 1st Symptoma mortis; 2^d Symptoma causa mortis; 3rd Symptoma symptomatum. Thus in Pleurisy, for example, the pain, fever, & cough are the true symptomata mortis; but if Cory or Angina attend, it does not belong to

to the Proximate, and the remote cause, and therefore is
the Symptoma causa mortis; the difficulty of breathing
is a Symptome Symptomatis. Diagnosticus
These symptoms, when taken collectively, constitute
the distinction of a disease, & are called Diagnosticus.
Prognostic is a declaration of the issue of a disease
taken from the state & degree of the symptoms.

In acute diseases, the Prognostic should always
be reserved & cautious. It is always difficult in chronic
diseases. Physicians should speak with caution in acute
diseases; in chronic, with more certainty & boldness.

The Diagnostic in acute diseases is drawn
1st from the Pulse 2^d the urine, 3rd the sweats, 4th the
5th the countenance, & 6th the dulcilitas. In chronic
diseases they should be drawn from the animal
functions, and chiefly from the appetite. But all these
are difficulties, even the pulse is not to be depended upon
in all cases. There is not a symptom declared to be
by Hippocrates & Galen from which it has not seen
patients recover; & few of those which are called
salutary

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salutary, after the appearance of which I have not seen
them die. And in chronic diseases the more we can
avoid a Prognostic, the better. The friends of a patient will
be anxious to know your opinion; the answer commonly
made is, I have seen persons who appeared to be much
worse recover, & some, who seemed not so ill, have died.
An old woman has sometimes slipped in & cured diseases,
which Physicians have pronounced incurable, to the
disgrace of Physic & its Professors. Never then give a patient
over, never pronounce him incurable, it is equal to prono-
ming the sentence of death on him. We should always
endeavour to keep hope in view, however small that hope
may be; for we do not know all the resource of nature,
nor what powers she still may have. A patient after recov-
ering after the Physician has pronounced him incurable,
ought to come under the cognizance of the Civil
Registrar, & the Physician declared incapacitated for
his business, & excluded from practice. We should smooth
the path of death by every means in our power; for it is
natural to have an aversion to dying.

Diseases are either Idiopathic or Symptomatic.
The Idiopathic are ^{sub}divided into Natural & Artificial.

6. The natural or truly incurable. In Sydenham's time, out of 100000 patients who died 66000 were affected with fevers; but not more than 1000 of 100'000 die of fevers, at present, as the bills of mortality testify. Fevers, Old age, casualties from various accidents seem to be the only outlets of life. Artificial diseases seem to be the offspring of Civilization, even the learned professions, & some mechanical implements, as well as intemperance, are subject to the Artificial diseases -

Indications of cure are founded on a knowledge of the Proximate Causa, necessarily thus in curing a disease. The first thing to be done is to remove the害. Remedies are the means employed for the removal of diseases.

What are the powers of Nature in the cure of disease? By Nature I understand in the present case, Physical all performed by the same powers that govern Electricity, or Magnetism. A ship, when thrown on her side, recovers her former situation by virtue

her particular structure; but if the ship takes fire
it is consumed, the fault certainly cannot be laid on the
builder. In like manner the Author of Nature has
employed, in our bodies certain powers, suited to obviate
all the natural diseases; but when the body is attacked
by the artificial, it resembles an Indian fighting against
a man equipped with five arms -

History of the operations of Nature.

1^o There are causes in which Nature is still successful,
as in Fevers, for she administers our appetites,
makes us seek for cold air & cold water. In Hemorrhage
she forms a coagulum.

2^o There are causes, in which nature is deficient
in her operations, as in Putrid & venous Fevers.

3^o Sometimes the power is overproportioned to the
danger, as in Adonalgia Phlegm.

4^o There are, as in atonic Gout, Epilepsy, Cancer, Hernia
venereal disease & Tetanus.

What does nature do in these cases? Nothing.

5^o She does mischief as in the dropsy & consumption

8. Consumption; the Pox; Rethora on the brain
varies the Melancholic to solituar. There are
causes in which she sends us pain to warn us of
and inconveniences, as stone in the bladder,
Chronic Inflammation, as discovered by Dr. M^r.
When the pain is not proportioned to the disease
as in the Tetanus & Alzanocephalus. Adulatation
as well pleads against the sequestration of his
because he had sometimes lied in
pretendas to clear himself of their charges. But this is
further confirmed by desiring the remedies, the
of which seem contrived to rouse, assist, restrain &c
all her operations. Some truths, like strong liquors
require a strong head to digest them; of this kind
is the last advanced.

Diseases are divided by different authors
in different manners. The zoologists, Sauvage, ^{say}
Vogel, & Linnaeus have been complicated by Dr. Cullen
from committing Cullen's definitions to memory
as much advantage will be derived, as getting
Grammatical in learning Latin, or getting some of the

My first Propositions of Luctia in learning the
Mathematics. Let me advise you never to prescribe
until you have investigated the disease, & fixed to its
proper class, order, genus, species. In all diseases particular
lately I see the pulse is considered as a good Criterion
by which we may judge. I shall offer some observations
on the manner of affecting it. 1st The different positions
of the body influences the pulse; it is fastest when stand-
ing, slower when sitting, still slower when lying,
slowest when lying on the back; a moderate meal
heat of fire, walking &c. will quicken the pulse.

Different positions of the hand also influence the
pulse. The hand moderate in a proper position to feel
the pulse to the greatest advantage. It is a good
method to sit down by the side of the patient to feel the pulse
for our sensations are influenced by the positions of our bodies, for
the same reason that a sick person is altered. If we feel the
pulse standing, every subsequent time we should also stand,
sitting, then the next time we should feel it sitting. We
cannot gratify two senss at once. I heard a Frenchman say
while at dinner to some person who was talking very loud,
don't talk so loud & cannot taste my viands. There is some
sense

10. now in this, for if you wish to apply all observations, only
one subject, all other should be concentrated on it. Shutting
our eyes is a good method of abstracting our attention
from external objects, when we feel the pulse.

2^d The pulse should be felt in both wrists, unless the patient
lies on his back. It is a good way to run your hand in
the hair of the patient, of convenient, & prevent all motion
in his body. Slimes, if possible. This will not be accommo-
dation, when we consider that our own reputation, the
of the patient, depend upon the greatest accuracy in the man
The artery sometimes takes a perternatural course; that is to
the common direction, it takes one between the back of the
thumb & the fore finger across the wrist.—

3^d Passions of the mind influence the pulse very considerably
chiefly with respect to its velocity, & not much, as to its hardness.
Hence we should not approach to a patient who is ill
for the first appearance of a physician, influence the passion
of the patient's mind very considerably; he is anxious to know
what is disease is, what his danger, how long he is to live, &c.
He is influenced by the apprehension of bleeding. A man
who had never been bled, was affected with an Hepatitis;

calling with a view of drawing some blood, her countenance
uncomely pale, she felt violently agitated, & scarcely a trace
of a vein could be seen. The bleeding could not be per-
formed, & she died of an Impostume in her Liver.

11.

Pyrexia. Sub Cullen's Syst.

Order I. Febriles. In considering of these the
first enquiry to be made is concerning the ^{Proximate} Cause.
For this refer you to Dr. Cullen, who has divided the ^{nummum} ^{nummum} ^{nummum}
fever into three stages viz. the Cold, the Hot, & the Sweating —

Spasm & Reaction constitute the Proximate cause
of fever. The cold & spasm are of a stimulating nature.
When remarkableness prevails, the Nervous or Putrid
fever called Typhus is the consequence; but when there
is a great reaction, the fever is of a very opposite nature, ^{nam}
the Inflammatory or Synochia.

Fever affect the ^{nummum} arteries, nerves, fluids, the arteries
are stimulants, the nerves as sedatives, the fluids as softeners —
In inflammation alone the arteries are affected. There
are inflammations which affect the nervous system
only; there are those which affect the fluids & nerves

100th

P leottas in Typhus; then those which affect the liver, as in the Synochus, & Leuken. Fevers will be continuous when there will be great debility or obstinate spasms. There is no continued fever, in which one of these does not obtain. The intermediate degree constitutes the Intermittent Fever.

The Remote Causes of Seven and thirty Marsh, and Human Epidemics; the other causes to be enumerated hereafter.

Caust. Efferv. have no. The general application of Kiarmenta. Human Efferv. are called conge of which there are various kinds.

1st There are certain species of Contagions peculiar to the species.

2. There are Contagions that are peculiar to particular animals, and do not affect men, or other animals. Those which affect cows do not affect horses. Most of the diseases which affect brutes are of the Catarrhous kind. And are peculiar to horses, in this country. & commonly called the Blind Staggers. supposed to be only a higher degree of Catarrh; for some men are affected with staggering

and even comes in very violent Paroxysms of certainn. 13.

3. It is peculiar to certain descriptions of men, The Negroes of the West Indies were exempted from the Yellow Fever that raged there. In Virginia, an Epidemic appeared, which affected the Negroes only. This fact extends to the Indians and white people at Nantuckite & Martha's vineyard, where some Indians were ~~—~~

Epidemics sometimes made their appearance amongst them which did not affect the whites, & the white inhabitants were sometimes seized with Epidemics, the Indians escaped

4. Peculiar to certain ages of the human species, Catarrhs which affect children only; sometimes have the same effect on grown persons only. Then Epidemics which affect children only of henticular ages, & somewhat affect all.

5. Miasmata are produced only by heat & moisture. When ponds or rivens are perfectly full of water, no man who lets some exhalation com take place. There is no sickness during the overflowing of the river Nile in Egypt, nor will moisture produce Epidemics unless when the marshes are overflowed in April & September, no disease is produced.

46. Marsh Miasmata exert their effects in consequence of cutting down trees, damming up water, clearing a country tends to make it sickly. Cultivating a country tends to make it ~~more~~ healthy. Hence in Pennsylvania intermittent fevers are ~~more~~ rare, & in the eastern states, there is scarce an intermission to be found.

How are the effects of Miasmata to be destroyed?

1st. They are destroyed by fire, whether the contagious matter be animalcular or not, is not well determined. Farmers should renew the brush of their fields to burn in September. It should burn a time when the wind is directly on the fields also within doors tend to prevent these miasmata from taking effect.

2nd. By surrounding the house with trees, which imbibe wholesome air, but should not be planted too near the house or each other.

3rd. Sulphur & gun-powder from constituents probably by mixture to destroy the effects of miasmata—
A Vapour by mixture conspires to correct this impure air. Dr. Priestly recommends pouring nitric acid & common salt, which the vitriolic acid decomposes & it is an

acids set off in vapors.

15

5th Fresh air alone all is useful, hence Epidemics are produced much less in summer, than in winter, because you can keep your doors windows open, & have a free communication with the external air.

Fever from contagion Amiasmata are less frequent than formerly. So what is this owing?
1st To the increase of agriculture. 2nd To the increase of horticulture. Hence a greater quantity of vegetables are used than formerly. Too great a proportion of animal food contributes to the production of Putrid Fevers. 3rd More cleanliness, regard being now paid to it that was not formerly, particularly in goats. Mr. Howard says, that the Goat Fever has been never known in any part of the world, but in the British dominions, owing to more animal food being consumed there, than in any part of the world. 2nd White washing the walls contributes very much to prevent the generation & production of the goat fever. Hence it is a query, whether parlor rooms be wholesome? 3rd The use of sugar. It is remarkable that the plague never appeared where there was much

16 much sugar consumed. 4th More wine & small liquors
both of which are antiseptic, & tend to prevent the boos
against Putrid Fevers. 5th Non Knowledge & care as
the methods of preserving meats. The latter the more
the more wholesome. Animals are now eaten
than formerly, & also more attention is paid to the
method of salting it. Salted meat is an Antisep-
tive. Children in the country are not subject to the
diseases that are prevalent in cities. It is remarkable
to the southward, that those who eat most salted meat
are least subject to Fevers, especially if they take ap-
propriate quantity of vegetables with their meat.

While Epidemic Fevers have diminished
Europe they have increased in Pennsylvania, on
to the increase of Millponds & clearing more ground
than is cultivated. The unequal quantity of
their corn grows fast has been a cause also of
epidemic diseases. There are two enemies to man
water & contagion viz. frost & heavy rains. These
miasma & contagion, cold & sharp air are remote
of fever. They co-operate with other causes. Cold & sharp

favours the propagation of contagion. Person, if 17.
he is warm, may go into a room without danger of con-
tagion, but if he goes into it when cold, the cold facilitates
him. This is of consequence more liable to be affected. The
men of Armies are adventurous, owing to ignorance
or inattention, as the life of a soldier in itself is a very hazard-
ous one.

Prognosis. This leads us to speak of critical
days. We must consider first the Intermittent Fever, it is the
natural type of continued fevers. The critical days are
the 3rd. 5th. 7th. 9th. 11th. here the tertian type ends. In
the Quartan type, there is greater delirium, now the sharp
change to the Quartan Period. 14th. 17th. & 20th. Dr
Harr found nature to deserve these days, on which we
give the most active & powerful remedies. Hence
Blister & Emetics ought to be given on these days.
Black Lead ought to be given in greater quantity on
these days 11th & 14th day. 3 p. dr. black given half an hour
before the accession of the fit of an Intermittent, will be of
more service than 3 p. given the day before. Dr. Cullen
has given you the sign of death or recovery, in the vital
animal.

10 Animal, or natural functions of the body. The Prognosis is drawn; *i. e.* from the acciditum. There is much to be learned from the posture of the patient. If he never lies to his natural position, the better. If he lies on his side ~~now~~, there is not so much ~~danger~~ if he has lain on his back for sometime, his ^{now} ~~former~~ side, we may pronounce him better. Lying on the ~~back~~ is bad, with the mouth open is worse; & with the legs ^{now} ~~open~~ still worse.

2. From the eye a great deal may be learned. The nearer it is to the natural state the better. An involuntary flow of tears is bad; a glassy appearance is also a bad sign. This glassy appearance is owing to the patient's winking. These are bad but, not always fatal signs. False vision is a bad sign; as also is picking at the bed clothes. Sleeping with the eyes open, turning up the white of the eye is a very alarming symptom.

3. From the countenance a good deal may be learned. It is a bad sign for a man to look suddenly old, facies atrophica. It is a bad sign for one to resemble his ancestors in a disease. Their resembling their ancestors arises from

This, that the lemons of Semilius are much alike, when 19.
the countenance fails, the shape of the lemons becomes
more conspicuous.

4th The tongue affords a good mark to judge from.
A white tongue is a sign of a fever; a dark one is a worse
sign; a dry tongue still worse; & publid any tongue worst
of all. The tongue may become dry from sleeping with the
mouth open, hence you should always have this in your
memory, when you examine the state of the tongue. This
dryness generally begins on the middle of the tongue,
and is an approaching crisis. The tongue grows moist
first round the edges, which moisture gradually approaches
the middle. It is of consequence to inspect the tongue.
A circumstance with regard to the dark colour of the tongue
is, that it will continue many days after a crisis, especia
lly in bilious fevers. Some aliments have the property of
imparting this colour to the tongue. —

5th Sweats. They seldom reliev, unless they are uni
versal over the whole body. They seldom reliev unless
they continue 24 hours. Morgagni mentions a particular
fever, in which, death, proceed by sweats, that were

20. are universal, & continued 24 & sometimes 36 hours, succeeded.

On Wine. This is so various in its consistence or colour, and so easily altered by various circumstances, Physicians should be cautious how they form their ^{Progn} from it. Tinted wine is supposed to indicate a crisis, wine more certainly; & lastly the sediment is thought most certain sign of gall. Pale wine is supposed indicate the presence of Hysteres; red wine the Inflammatory & febrile disorders: however little is to be inferred from the wine, because there are many symptoms more unequivocal & certain.

21. The bowels, have been attended to in order to form a Prognosis but it is of little consequence to the facts, as you may get all the necessary information from the patient. Feces bene colorata indicate Green stools indicate an acid, dark brown the presence of bile. Stools formed into balls are signs of some irritation. A quick discharge, as well as inflammation takes place in fever, is a sign of delirium, & commonly a fatal symptom. Involuntary stools indicate great weakness in fevers also.

36. A discharge of wind, accompanied with diuresis, is a favourable sign, particularly after an involuntary discharge of风. Diaphysis is a favourable sign in fever.

9. An abscess in any part of the body is a favourable sign.

9. Ulcers after healing up, suddenly break out & looking red is a favourable symptom, so proof that refection has taken place.

10. The voice, the more it departs from the natural tone the worse; when it is natural, dependence is not much danger to be apprehended. When patients speak with a drawl is favourable.

11. Scrofula or Hawking & Hissing is a favourable symptom. It occurs in a malignant disease in the malum pectoris.

12. The pulse affords the best Prognosis, a strong pulse depends on the strength of the contraction of the heart, & vice versa on the large quantity of blood thrown out, a small one on a small quantity thrown into the arteries.

A frequent pulse, on the frequent contractions of the heart as low one on the scurvy of them. The hard, soft, redoubled, jerking pulse depends upon the motion of the arteries also.

22. A quick one on the irritability of the arteries; when the pulse is 120 times in a minute, it is thought a sign of death.

There is a peculiar softness, roundness & fulness of the pulse that indicates an approaching crisis, which elapses know as well as the hours on the face of a clock. It is possible to graduate the pulse, make its highest degree of irritation 10. When you have reduced it, a complete solution of the disease will happen.

103rd. The Intestines intimate the state of the disease. The state of the temper is worth attention, even the humor will tell you that a patient is recovering, if he becomes irascible. The return of convulsions late in a fever is a deadly symptom. The return of taste after it has been absent, is a favourable sign, such as for Coffee, Tea, & Snell for myself.

The return of appetite for animal food, the return of sleep afford an agreeable Prognosis. There is no one of all these symptoms infallible, that is generally preceded by an abatement of the symptom on the critical day, preceding that on which it is to terminate. Some few hours away, as it were, without any

any crisis. Winteringham says that Epidemics often 23
terminate without any sensible evacuation. —

Indications for a Fever are 1st to
moderate the violence of reaction. 2^d remove the cause
of debility. 3^r relieve the tendency to putrefaction. We
shall begin first with Inflammatory Fevers. This though
there is no case of Synochia, in which a Congestion does
not take place. In Intermittents the first genus is the
Tertian divided into those which have an Intermission
of remission. — Persons in southern climates are generally
attacked with Intermittent Fevers. The longer the cold
fit continues, the more certain you may expect an
Intermittent. Those fevers which make their appearance
without a chill are generally continued; the circumstance
by which you may know Intermittent Fevers, is putting
spoil; but this will be not the cause of the disease.
A tertian comes on the midday, taking all these
circumstances together, you will not be at a loss to distin-
guish between them.

In treating an Intermittent two things are to
be considered 1st to conduct the Paroxysm (1)
Paroxysm is a fit, the periodical returns of

242. To prevent its recurrence. Paroxysms of inter-
mittents are accompanied with great heats in the
bones of the extremities, neck, & head. The sucking
cold chills are very disagreeable; even death is
on by Asphyxy, sometimes by vomiting & sometimes
by the violence of the chilly fit, which admits of
no reduction. When it is painful, & more is protracted
by its being fatal, it is necessary to endeavour
cure it as soon as possible.

Remedies are, Liquid Laudanum, for
alleviating the violence of a Paroxysm of the intermit-
tent. Dr. Belli in his disease of St. Lucie recommends
this practice. The Laudanum should be given in a
large quantity as in a fit of the Cholic. When
it is safe to give wine, you may with propriety give
Laudanum. In intermitting fevers wine is necessary,
for how there is no congestion. As a sucking
Pepper Mint tea, or hot punch, which last is to be
well be service, in taking which, the patient
should be in bed & kept warm. To prevent its
return.

return, the Indications are 1. To strengthen the 25
ton of the system. by riding just before the accession
of the fit, which often prevents its coming on. The ride
cures it radically. 2^d Cold bath during the inter-
mission; it acts as a tonic, or by exciting horror. Amer-
ed his chimney on fire accidentally, just before a fit
was expected. The horror, occasioned by this, cured him
notwithstanding his disease had resisted all the usual
remedies. 3^d Hot drinks have sometimes prevented their
return, taken one or two hours before the accession.

The country people place a patient before a fire, & make
him drink hot toddy; 'tis an unsafe remedy, & ought
never to be practiced. A. Comills. Was usually suffer-
ing from worms, but the practice was carried too far.
If the patient vomits during the cold fit, when
the disease happens in the spring, emetics are unnec-
essy, but there are other cases in which vomiting may
be improper. Viz 1st Antipathy. The method of taking
on has sometimes occasioned convulsions. Pregnant
women are always liable to taking worms. Serious
hunger can have the same effect. 3^d Patients subject to

26. to Hemisiloe, or Hematemesis ought not to
take Emetics; in these cases lenient purges ought
also to be substituted in their room. $\frac{1}{4}$ dr Opium
gr ii. or a plentiful dose of Laudanum given two
hours before the accision of the fist. prevents itself,
it acts as a stimulant only. $\frac{1}{4}$ dr Astringents,
has been used with advantage, in the different
of blue, white, & green; gr i. of blue vitriol given
or four times a day, sometimes cures an Intermittent
Yfr. Alum has produced the same effect. Thereupon
only suspend the fist, but do not eradicate the cause.
of Bitters. Dogwood Poplar Broom, Centaury,
Chamomile flowers, Gentian root have been
with success. The Colimbo root has also been used
with advantage too in this disease.

Or Aromatics, as a nutmeg roasted in an
onion beaten up with a pint of vinegar, and an
an hour or two before the coming on of the fist
but also at times are ineffectual. Of A mixture
of astringency or mittans together as in the
leech

bank, which is the only remedy that is generally ²⁷ infallible. Red Bank over its superior virtue to its greater astrin. genus.

10th A remedy prepared from a spider. Viz. take a common spider, put him in a piece of bread which is to be toasted & made into a pie. The spider is poisonous & may act as a sedative & then as a stimulant.

11th Arsenic has also been used; but it is a dangerous remedy, ought never to be tried, it removes violently & disposes the hair to fall off thou who uses it.

With respect to the banks use, it should be given during the intermission & as near the accission as possible 3*i.* 4*j.* or 3*j.* 4*ii* grm. just before the accision will have more effect than 3*j.* 4*ii* at another time.

The best way is to give it in mustard. In infusions you may give it in numerous continued sponges; in the convalescent state of sponges the tincture may be given. After the first fits are broken, a dose or two of bank should be given in a day for some time, & as relapses happen either the 8th or 15 day we should give more on those days than usual.

Intermittents

28. Intermittents may be complicated with other diseases, as periodical pains in different parts of the body, or even when they are not periodical, or when they are of a continued form. These pains may be known to be intermittent by keeping your eye strictly on these of the year, in which they occur; when these pains are periodical, give the bark, & when they are continued blister, bleed &c. in order to bring it to a periodical type, then administer the bark.

There are Intermittents which won't cure; this Dr. Saunders says is owing to our using an inferior kind of bark, but even the red bark will not cure them, & is even more injurious than. The common bleeding is very necessary, & should be used in all those which continue after the cold weather has commenced. The blood is sixty, & it is necessary to bleed two or three times in fifteen days. The other remedy when the bark fails is blistering which is often efficacious, which succeeds best when there is no Inflammatory Diathesis.

Hence in cases Plasters are applied, with 29
advantage before bleeding. In most cases when
bleeding is of advantage, a Topical Congestion takes
place; how shall we reconcile this with Dr. Cullen's
theory of intermittents? by supposing there are two
species of Inflammatory Diathesis, the one occurring
when there is low & the other Stomach, called Indirect
Inflammatory Diathesis

Continued Fevers See Cullen's Syn.

Synochasudo. It is most probable that no Inflamm-
matory Fever ever exists without Topical affection;
in more than half appear to have been of this local
affection, after sometimes a slight cough, or a pain is
felt in the right side, indicating some slight con-
gestion in the liver. Inflammatory Diathesis
have existed in Europe, especially in London, owing
to the alteration to their manner of living. - In this
country Synochas or Inflammatory Fevers are very
requent. The Indications of fever are $\frac{1}{3}$ to
moderate

30. moderate the violence of Reaction, by moderating
the impressions made on our bodies; increased
heat must be avoided. The heat of the room must
be diminished, in proportion as that of the body is in-
creased. The temperature should be below 60°. The
increased heat must be prevented by injurious heat
rest, & an intermission of all kinds of exercise. This
way to conquer a fever is to yield to it, while chronic
diseases are overcome by resisting them with all our
might. There are few Incipient Fevers that can be
cured by exercise, or drinking hot inflammatory
drinks. Exercise of the mind must be avoided;
Company should be excluded; all useless postures
and looks avoided. The conversation of company
which excites the mind is hurtful by being
on improper subjects, such as talking of sick people
or deaths in the neighbourhood. The taking in
Aliment must be avoided; nature however
will by taking away all appetite. Particular
irritations over to be avoided, as from thirst, which

which should be situated by any drinks, that 31.
are not stimulant; water should be the basis of all
these drinks. Heat are not stimulant other substances
are added to make them palatable. This induced this
patient to drink more freely. Her teas are proper
such as those made of Balm with a way little sugar, and
sweet Marjoram, Myrrh &c. Piscins, or honey water
or fig tea with a little lime juice added to them &c are
very proper. When a Diarrhoea occurs rice water
with loafsugar is more useful. The summer fruits cut
fine boiling water pouled on them, afterwards sweet
and make most agreeable drinks. Peaches, new
lemons, cherries, apples &c. are all proper, & may be used at
all seasons of the year, as the dried are equally proper
with those which are not dried. Cruditie are to be
removed from the stomach. Inflammatory Favers
seldom begin from the sickly fat stomach, but
when it does occur a gentle Emetic will be service.
Constiueness is a very frequent symptom of inflam-
matory Favers, hence it is of great consequence to
vacuate the bowels, as the poiss are stimulant.

and

32 and a source of tension; Liniment fumges should
and as Salts, Castor oil, Manna, & laxatively
In a man of mercury in Hepatic & other inflamm
diseases, I have found the bowels with a single calomel
or two, with great advantage, it is a steady, certain
splenetic evacuation. The tendency to acrimony
the fluids must be prevented by Drinks, the
employment of certain Salines as cold tea, the use of which
is cur'd in the smallpox & other eruptive fevers, is
attended with success. Cold may be used in all cases
when there is not an affection of the lungs

Let us next consider the utility of refrigerants,
Acids of all kinds are proper in this intention, but
salts are more in general use. Nitre has been
employed more than the others; but when there is
a tendency to bilious Complaints, it will not lie
on the stomach. Metallic Salts are but little used
Another method is to diminish the tone ^{of} tension
of the Arterial system by Blood Letting —

General Observations on Arterial Tension

Tension

Tension is of two kinds Arterial & Nervous, they 33
influence each other, but sometimes do occur alone. The
action of the Arterial system depends upon many
circumstances. 1st On Original Hermina

2nd On great bracing powers being applied, such
as Cold & Exercise. 3rd On the quantity of Aliment
taken into the body 4th On the quality of the Aliment.
The more Animal food taken into the body, the more
it is disposed to arterious tension. 5th On the state
of the alimentary canal. This canal being filled with
faeces increases arterial tension, but this acts more
on the nervous system. Perhaps the influence of the
alimentary canal on the Arterial system depends
on the quantity of faeces it contains, acting as a stim-
ulant, & contributing to keep up arterial tension.—

6th On the state of the arteries, which is influenced by
two circumstances; first by Pregnancy; secondly by
Menstruation. Women are always more disposed
to Inflammatory diseases during Pregnancy,
and also during Menstruation. during their
courses

34. causes they are more liable to take cold. Bleeding applied in the present disease is proper —
First, in all ages, this is generally allowed. As equally proper in the old & in the young as in the middle. Children of three months old have been bled now or four times in Pueris. The blood being constantly. In some cases children of three weeks old have bled with advantage; secondly at all times when an inflammatory Diathesis occurs, no situation of the system should be excepted. Physicians have generally thought it improper during menstruation, but so far from this being an objection, you should bleed more copiously. Why? An accidental death or from cold is to be altogether neglected. The disease to be treated as an Inflammatory Fever. Say this but you will frequently find menstruation return, for which you will get greater credit, & if they do not, you have nothing to apprehend. Meny differ very much about the part of the body the blood is to be drawn. It should not be ever taken from a woman from the Soos. — for —

1st It seldom flows plenar y and 2nd You are obliged to

disturb the Patients by making them run, therefore 35.
reject them to cold. If you bleed in winter, therefore cannot
qualm them in the quantity of blood drawn. If you cannot
middle of no cover the appearance of the blood. It is not safe on account
of the tendons, which run there in great numbers. For
these reasons I prefer bleeding in the arm, for as full as there
as possible. For the more suddenly the tension is taken from
the system the better. A Patient sometimes faints suddenly
from opening a descys by a large incision, or from leaping
this arises suddenly from the sudden diminution of tension
from in the part from which Atonia is communicated
to the whole system. In like manner by letting off the blood
in as little time as possible, you do most service. Two lbs
taken away in two hours, is not of as much service as life
taken away suddenly; because the Arteries, when the blood is
drawn off slowly, have time to contract; you can also observe
the appearance of the blood better, when drawn off quick.
A convenient posture of the body should be preferred. Hence
it is a bad practice to force patients to rise from bed when
they are to be bled. And if you can bleed them lying on

36. On their backs, it is to be preferred. For you prevent the muscles to act. This of consequence to inspect the blood, it is influenced by various circumstances. It always bleeds in a bowl. The nearer the Coagulable Lymph to the surface of a the more it floats in the serum, the greater is the Inflammatory Diathesis. Yellow serum is also a mark of inflammatory fever, which occurs also in the putrid. Hence two extremes meet in a point. The employment of blood letting requires that you will find many hours when you will be in doubt about the propriety of bleeding. You will determine 1st By the nature of the prevailing Epidemic 2^d By the nature of the remote causes, whether Contagious or Miasmatic. It is common to forbid bleeding, when the presumption is that the disease is brought on by Contagion. In summer this is a good rule, in winter it is by no means to be adhered to, as the inflammatory diathesis at this season, is so powerful, as to overcome the Septic tendency of the contagion. 3^d The season. the Climate which

which the disease occurs, or of consequence ought to be 37.
attended to. The Climate in which a mens constitution
has been formed is still worth attending to. A Londoner
will not bear bleeding above once, because their fevers
tend so speedily to Typhus. But an American in London
if he is seized with a Pleurisy for instance treated according
to the London method it will certainly end in Empyema.

IV. The degree of Phlogistic Diathesis —

V. The period of the Disease.

Emetics in fevers are used for two purposes;
1st to discharge the contents of the stomach; & as a Diaphoretic.
There is a great sympathy between the stomach & skin over
the whole body. The most common emetic fever is
Antimony —

Of all the preparations of Antimony
Tinctur Emetic is the best.

To make Antimonial Wine.

Dr. Tinct: Emet: gr: ii Vin: Lisbon: 2 j. This method
of making Emetic wine is the best, as it renders the
antimony. Qul: 60 contain $\frac{1}{2}$ gr. of Tinct: Emet: The

30 The tension of the system is also to be taken down by exciting rauine by small doses of emetics. There are also other methods used for this purpose, such as Blisters, and Antispasmodics & Evacuants, & irritant hauits as stimulants.

The manner the Blisters are applied to the parts affected by inflammation the better I more certain therof for how they act as Antispasmodics. There is a species of sympathy occasioned by continuation of membrane, as the irritation felt on the glans penis in affections of the bladder; that felt in the fauces, when worms are in the stomach. In pure inflammatory fevers, ^{Blisters} act as Antispasmodics, if there be no topical inflammation where this is the case, as in a Pleurisy, they may do good in evacuants also. In irritated hauits, if too great heat is occasioned by their application they must burn. It is a common practice to let blisters by Phenac, but the true rule is till the blisters rise, & then lay them as stimulants. Pieces of muslin laid under the first blister are said to prevent Strangulation.

They do certainly prevent the flesh adhering to 39.
blister, which is sometimes of consequence to prevent.

Drinking from 6. ii to 6. iii Barley water, will infallibly prevent the strangury, if the patient begins to drink it as soon as the blister is applied. If this is neglected, the strangury has come on, it may frequently be removed by drinking barley water, but sometimes a little Sanguinum is necessary. Cableg-
hans may be applied when we wish to draw & irritate
the blisters, but should not be applied to Foulable parts.

They should not be used when there is a septic tendency
because they quickly putrefy, & may increase the comp-
laint, or at least they render the room very offensive.
The best application is an ointment prepared of wax &
oil; the skin should not be taken off, when wax oil can
not be procured, a rag dipped in fresh butter, or mutton
fat will answer as well.

Some further observations on bleeding—

1st. The degree of Phlogistic Diathesis, the period of the disease
& the manner of living, also the patient's habit of bleeding,
& the appearance of the blood drawn, should all be taken into

40. into consideration. 2^o. Warm bathing should be
used for lessening of tension. This was a famous remedy among
the ancients: but if any Septic tendency prevails, it
will bring on, unexpectedly, great weakness. It is
more troublesome in most cases, notwithstanding Dr.
Gildtrists Treatise, it is unsuccessful ~~sometimes~~ ^{it is} to be
sure

Typhus, mitor, granior, and Pterodes, or Yellow Fever of the West-Indies

These include all cases of Nervous & Putrid fever
that exist. Fluxion is slow. Nervous Fever is an accurate
description of Typhus mitor. See Cullen's Diffⁿ

The cure of Typhus mitor consists in alleviating the
debility, and removing the cause of it. Effects of debility
are alleviated; 1^o. by increasing the action of the heart and
by Tonics. Cold which is a powerful Tonic acts by its sensible
qualities. By the pure air you derive by exposing the patient
to it. I have no experience of the effects of cold as a tonic
in this disease.

Tonics are either vegetable or fossil. The vegetable
Cortex Peru: which is the best Tonic; in the Typhus mitor

it may be given with safety at the 11th day. This is common 41.
only a little Inflammatory Diathesis in the nervous humor
which may render the exhibition of the bark improper, till
it takes on the quætor Type. The Inflammatory Diathesis is
Duty to be the criterion, for we sometimes give the bark before the
11th day, & sometimes not till after. — In the Typhus Gravior
you may begin the use of it immediately after usual
Evacuations, & not only by the mouth, but by injection.
Also, hæmorrhages, & emerulations or Catapæsms, which are some
times as large as to involve the whole body. The stomach
will often vomit bark when nothing else will remain in it.
2^o Stimulants, as wine and Aromatics, all these
appear to be useful. Volatile Salts, as stimulant may be
given in both Milder & Gravior, from 5 to 10 grs. It may be
given if necessary at any time of the day. In all cases
Inflammatory Diathesis Opium may be improper by
its stimulus, except in affections of the lungs, where the
irritation occasioned by the Opium is not so great, as
what would be by coughing. Wine must be given in
much greater quantity, than is commonly the case. we
must be governed by the degree of the disease, & the state

12 state of the pulse. Tis an Antiseptic as well as a Stimulant
From one to four pints may be given in a day with
safety. It is almost impossible to make a patient drunk
under a nervous fever, by any quantity of wine
you can give. Suppose the standard of health to be
20, at which time a pint of wine will be intoxicating.
Then it sinks to 10, it will take a quart. Also on account
of the degree of debility. To people who have
been in the habit of drinking wine, we double or triple
the quantity. It may be given unmixed. Port wine
is good, but Madeira is the best of all wines for
two reasons; 1st because it possesses more Antiseptic
virtues & 2nd because it is not decomposed by the heat
of the stomach. I can easily conceive that Madeira
is thrown out unchanged by perspiration. At least
of the feet, & cataplasms composed of bread and milk
will raw Garlic beaten up in it, stimulate gently & slightly
inflame the parts. A Patient had two such poultices
applied while he was delirious, & in the succeeding hour
he was sensible. Steated garlic, tho he knew not what any
longer.

43
thing had been applied the night before, a
proof of its entering the circulation. A poultice of mustard
is a more speedy stimulant, but in Typhus minor
ulceration necessary. In Apathy Mustard is to be pre-
ferred, on acc^d of its quicker stimulant. Our judgements cut
in half are sometimes applied to the feet, but this is a
cruel and sometimes dangerous remedy. By emetics &
vinegar are also used by the old women, but is not so
efficacious as garlic or mustard. The numerous fumers are
sometimes complicated with the putrid. And other times
sometimes with Inflammatory fumers. How ever must
our judgement and not be governed by name
merely. In Typhus gravior, the intemperies of course are
to divide the tendency of the fluids to putrefaction,
this is done, by avoiding the application of putrid matter,
by removing the patient from putrid air, when
that cannot be done, the air must be corrected by
keeping the windows and doors open. Hence putrid
fumers spread more in winter than in summer
because the windows & doors cannot be kept open.

Hoens

444 Mains make the best hospitals in the summer, especially the most exposed to the south. When a man cannot be procured, the patient should be carried out and placed under a tree. The air may be rendered by certain exhalations, as from branches of cut & straw upon the floor. The willow tree exhales the greatest quantity of this pure air. Dr. Priestly obtained an acid that could correct the pure air, by pouring Uritiolic Acid on common salt. vinegar has the same effect when poured on a hot ^{fig.} or stone. The accumulation of the patient's own effluvia should be avoided by changing his ^{thm} bed-clothes, & body-linen; his tongue should be ^{is.} cleaned as frequently as possible. All excrementitious matter ^{eth} removed very carefully. While Dr. Dr. H. was Physician to General to the British Army, he was ⁱⁿ in command one of the transports, & in the hold he found many sick, among whom ^{arg.} whom was one ^{the} who appeared to be dead. The Dr. ^{him to be} Dr.

he was taken to shore, hurried immediately, he was 45
accordingly thrown into the boat and four men rowed
him to land. Crossing the water, a fresh wind blew off the
land, directly into the men's face; he promptly began to
breathe, when they reached the shore, he was able to speak,
instead of burying him, they placed him under a
bush in the cool air; the consequence of which was, that in a
very short time he recovered. This is a most remarkable
instance of the efficacy of cool air. The stomach & intestines
must be kept clean by vomits & purges. In the beginning
of 19 out of 20, putrid distemper vomits will be necessary, and
in the progress where there is a constant sickness at the
stomach accompanied by a full pulse. When there
is not much nausea, the bowels should be evacu-
ated every ~~other~~ ^{two} day by lenient purges.

Dr. P. Morris thinks that the body is an excretor,
if it is so, it is of the utmost consequence to disch-
arge it especially in a putrid fever it is more acid
than at any other time. Keep your eye on the state
of the alimentary canal always steadily. An
emetic

46 Emetic quee just as the first symptom of a putrid
fever appears, will always prevent it. In the progr^{ess}
of the disease it is always necessary to cleanse the
 alimentary canal, with leuient purges. A sailor
 discharged from a prison ship shortly after his
 demission was seized with a putrid fever; in a few
 or two hours his weakness had proceeded to a very great
 degree, more so than could be expected from the
 of the disease: suspecting that it was from putrid matter
 in the stomach I administered Tolm. Tart. Emet. of
 less a young gentleman with him to review its
 operation, with orders to comand his having taken
 a emetic & to give him a little liquid laudanum,
 the vomiting should be excessive. The next day
 when I called to see him I found him sitting up, in
 the front door. If quin. la propr. in every stage of
 a fever, when there is no inflammation, it must
 also be proper in a putrid fever after an Emetic, to
 allay the irritation. Antiseptics. Monk.
 wine & bitters of all kinds, also porter, wine and

and bark are still more necessary for them 47.
in the Typhus mitior. Dr. Lettow has recom-
mended Porter; it is a tonic & antiseptic, chasing them with
color of the least quality & not apt to be adulterated, from
his skillfulness it often cures vomiting. Mittess are Anti-
catarrhalic. Colombia Root has especially been used with
advantage. Chamomile Tea is also very good. Fixed
water for a while had great resuscitation, but is of no
service besides being troublesome. The convalescent
state of nervous & pleurid fevers is often attended with
great danger, therefore you are not to leave your
patient immediately, but you must still consider him
as a subject of medicine. For 1st They often relapse.
2nd Henry die of new weakness. Symptoms are swelling
legs, Anorexia, putting in the morning & night, sweat,
wakes up, falling off the hair, fits turning gray.
The mind is also much affected in the convalescent state,
hence Amnesia or Amnesia often follow this disease.
The memory & indeed all the other faculties are
injured by it. Dr. Leland at six years of age was

seized

40 seized with a putrid fever, lesson his illness, he could
read but when he got well he knew not a letter. The
voice is sometimes much affected in Putrid Fevers,
To guard against them in convalescence, we must have
in restorative Medicine & Diet. Of all restoratives
Auxom's Trichlor of Sulphur, is the most excellent. A
table spoonful, or wine glass full may be given the
or four times a day. Porter as a medicine, has an ab-
solute diet is very proper. Oysters form a proper diet, are
easy of digestion and afford much nutriment. They
should be eaten raw, for in this state, they are most
easily digested: There is as much difference between
raw oyster & one that is boiled, or roasted, as, between an
egg that is soft, & one that is boiled hard. Another anti-
dote is Chocolate, when the stomach rejects everyth-
ing else, chocolate will be retained, it is probable that there
is some sedative quality in the oil of the Cocoa Nut. The
vulgar say that it is heavy & cannot be thrown up.
There have been great revolutions in the causes of
fevers within these 15 or 20 years past, for which we are
chiefly indebted to D. Cullen. we have learnt from

from him the great use of emetics, purging, 49
Opium, wine, & leeches, which are the hinges on which
the cure of fevers turn. Formerly wine, whey, & leeches in
infusion were only given: but now we give wine
along with leeches in substance, without waiting
for any intermission, especially when there is any
Septic Diathesis. The use of cool air & cool regimen
is another great improvement. Ten patients out of
one hundred used to die formerly in all kinds of fevers,
but now not one in an hundred, or even 300, in this
city die, owing to their being generally treated in the
manner recommended.

Synochus, see Cullen's Synopsis
On this disease I have nothing to say. In its inflam-
matory state, treat it as a Synoche, & when it becomes
a Typhus, it must be treated as such

Nectica is a symptomatic disease,
consequent on wounds, ulcers, unusual disease &c.
and appears to depend on debility. It is to be cured by tonic
medicines, as the cold bath &c

Phlegmasia, for the definition see Cullen.

Bibliofornis

50 *Philogenesis.* for no definition see Cullen.

Topic of inflammation of any part of the body is called Phlegm
or Phlegmon. There are two species viz. Phlegmoris ^{more} dry
Phlegmoris varies in its form & seat. It tends to resolution, ^{sup} mo
wation, Hemorrhage. Our business is, in the first place to
attempt resolution. <sup>1st By bleeding where the inflam- ^{blea}
-ation is so considerable as to import fulness of the pul- ^{fun}
-
-</sup>

2^o Purging, where the inflammation occurs in the upper parts of the patient, as in the head & breast. ^{Mr} ¹ slight, vegetable diet.

4th cold air & water, lead water has been used to ~~alleviate~~^{alleviate} & mitigate topical inflammation. Emollient washes
of bitter herbs, especially when the inflammation ~~is over~~^{is over}
on the limbs. Vinegar is frequently added. Other ~~salves~~^{salves} to
bring about resolution, we must try to susiprate the
eyes, moist poultices of bread & milk. Black radish has been
used, also sops of lily roots. Sapoester made of honey & flour
The dye poultice is to be preferred. It is thus made, one
of flour, one gill of slye, as much bread as will make it into a
consistence & spoonful of oil. This stimulates gently, & ^{is} ~~is~~
an excellent application to a swollen breast. Crude Sal
^{me.}

Sal Ammoniac dissolved in water is accounted an 51.
excellent application. Children are subject to infl-
amation in the neck for two causes. 1st from the
sore throat. 2^d from Teething, thus Lye poultices are
most powerful applications in these cases. Swelled
breast is a most troublesome disorder, we should
therefore endeavour to prevent it. In Gaul and such
things as a swelled breast is scarcely ever heard of.
previous to a womans lying, we should make it
a practice to draw her breast with her finger, or wash them
with a decoction of white oak bark. This prepares the
excretory vessels to discharge the milk when the child
is born: when this is neglected, after birth the milk stagnates
produces irritation, inflammation & phlegmon. There
is another cause Viz. cold or severe sailing on the breast.
We must attempt to disperse it by Sp. viri, gentle purges &
drawing the nipple gently; by lead water, low diet, a cab-
bage leaf, & a solution of crude Sal ammoniac in water.
When such a tendency to suppuration takes place.
we must have recourse to the Emollient, especially the
Lye

52 *Lyp poultice.* It is improper to open the breast soon, it should be opened in the most dependent part, a large incision is unnecessary, a puncture will be sufficient sometimes. —

A sour nipple is a painful & distressing disorder. In case the lead water applications are of great service. mixed with oil has frequently succeeded, after the common applications of Leadwater have proved ineffectual. Women sometimes discharge blood instead of milk from their breasts. It arises from a great relaxation & disorder of the secretion. It is cured by bark, wrapping the breast in a flannel diff. in claret or port wine. It is a rare disorder.

Paronychia or felon from bruise or cold. is an inflammation of the periostium of the first or 2 points of the fingers. When it first makes its appearance dipping the finger into boiling vinegar will prevent its progress, distilled vinegar will have the same effect, how this acts ~~will have the same effect~~ is not easy to determine. Another method of cure is cutting down the bone in a longitudinal direction. If this have been used without success, or neglected, the disease is often

then dangerous, frequently tedious. *St. leonis* 53

u. non vices take it off.

Anthrax, appears on the back, it comes on with
itching, spreads over the parts resembling an *Honey*
comb; it is necessary to open these little pustules or
vesicles, keep them clean, & in almost all cases to give
the leech.

BURNS. The leadwater is a proper & powerful
remedy, an ointment prepared of copper or white lead
is a most excellent application. Soft poultices are use-
ful. The common remedy in this disease is scraped
potatoes. Molasses has been used, but is irritating, the
best application is a bread & milk poultice. Dr. Moyse
recommends an ointment of fine sweet oil. it is
harmful & has been frequently used with disadvantage
in the London Hospitals —

Chilblains. are frequently to be prevented from
inflaming by cataplasms of snow ice, or by cold
water, the part affected must be rubbed; & ice avoided.
When inflamed, or when long green comes on, we
must use the remedies proper for such complaints.

1811

54. An abscess should be opened by the knife or caustic.
The bone should be opened by caustic, that for
the purpose of destroying as much of the disease
as possible.

Gangrene. to cure it, make deep incisions,
trications, & apply stimulants, as turpentine; when
the whole system is affected, bark must be given
large quantities.

Ophthalmia, in Cullen

It is either **Idiopathic** or **Symptomatic**. Some eyes
are **Epidemic**, in consequence of their being asymp-
tomatic, so that the fever not the sore eyes is the epidemic
disease, which fever may be so slight as not to be observed.
The cure of the **Idiopathic**, whether it is an **Ophthalmia**
of the membrane or is generally the same.
It does not often extend the inflammatory diathesis to
the whole system, tho this is sometimes the case. If this
happens bleeding is necessary. If this Diathesis
is not general, we must use topical bleedings by
leeches, or as a substitute cuffing the temples.
Purges are of great consequence & should be given
immediately

immediately after bleeding. There is a kind of 55
inflammation, that ends neither in Sphacelus
nor Gangrene, in which case the bark is injurious
to be used by topical applications only. This way
frequently an attendant on the Scrophulus, unequal
disease, Small Pox, Measles, in the first instance it is to be
used by bark. Blisters are very serviceable few cases
require a blister on the neck, one behind each ear in
general is sufficient. Blisters have been applied to the
temples with the most happy effects, much care should
be taken to prevent the flies from getting into them.
After the evacuations, Tonics of the metallic kind are
preferable than more so them lead water. Poultices may
be applied to the eyes composed of bread soaked in lead
water. Sometimes the skin resists all these remedies,
in which case Opium in solution is used with the most
happy effects. When this is applied without success we
may make a poultice, as of lead water. This fails the
steam of warm water will sometimes succeed, but there
is a suspicion of its being improper upon account of
its relaxing quality. Electricity drawing sparks of

56. If fire from the eye has suddenly carried off the inflammation. Then the electric fluid is a powerful tonic & should be used after the evacuations mentioned. The sight should be avoided on account of its great irritation. The best way to avoid it, is to confine the patient to a room entirely dark. This is Dr. Cullen's plan to avoid irritation from fire. Suny vivid fire will always increase it sometimes even bring on Ophtalmia. Hickory wood by its vivid flame & great heat often bring it on. The changing this wood for oak in these cases is proper. In an inflammation of the eyeball, there is sometimes a dryness of the eye itself. It may be corrected by Lapis Caleum naris finely leuigated & mixed with fresh butter. Rubbing the eyes with this ointment when this disease arises from heat & dryness is proper -

Phrenitis. see Dr. Cullen's Dissⁿ
The idiopathic phrenitis, is very common but the symptomatic is more so. For the cause consult Dr. Cullen's Practice of Physic. The cure whether

Salvo:

Diaphatic or Symptomatic is the same. The 57.
indications are 1st. Bleeding very copiously; oper-
ating the temporal artery has been recommended;
also the jugular vein perhaps $XVI. \frac{3}{4}$ blood taken
which would be of as much service XXV. from the
arm, least most patients would rather lose it from
the latter, in a larger quantity. 2nd Stimulating the
bowels by clysters & purges. 3rd Having the head &
applying in g cold water or vinegar, the latter should
be preferred on account of its sedative virtue. 4.
Clysters applied to the head are of great service, they
ulacom raise a blister how 5th the air is of great
consequence: an erect posture should be recom-
mended in this disease. Opium is certainly injurious.

Cynanche. or some throat Distemper in Cullen.
Pisillaris the common inflammatory sore throat. The
tonsils sometimes ulcerate only and discharge but little,
at other times they suppurate & discharge a great quan-
tity. When the pulse is hard, an inflammatory diathesis.
A small white pick on the tonsils, we are notwithstanding

18. to treat it as an inflammatory disease, especially if the Tonsil be much swelled. The tonsils do not always ulcer or suppurate, the inflammation is sometimes resolved. The cure consists in purging, bleeding, blistering round the throat ~~about the heart~~ where the patient is in danger of suffocating. Applied here, they are of more service than behind the ear. Gouges of gumgum Honey, in sage tea are useful. Sir John Pringle recommends the volatile liniment, when blisters are applied to the neck, this is an excellent application.

Maligne. Dif. in Cutten. On the subject peruse Huxham, Tothergill & Dr. Johnston. This species Cynanche has been confounded with the Scarlatina of the nose. Distinguishing mark, in much greater mortification of the Maligne. It generally attacks the young tho it is not peculiar to that age; some authors say it is the same disease only different in degree. But we might as well say that the Intermittent fever & Typhus were the same disease because they are symptoms in common with both.

This disease set in the Spring & winter in moist & 39.
warm weather, attacks women & children. & black
eyed children often than others, for black eyed people
possess more sensibility. It is attended with watery
eyes, a flat and drawling voice, a lax Symtoms of the
Typhus Grenier. CURE. Emetics, Turpentine Mineral
was given when the disease prevailed in this city, with
the greatest advantage, not a patient died who took
any of it in the beginning of the disease. For 1st
it operates quickly. 2. copiously. 3. It stimulates the
Glands, generally, so as to excite a more copious dis-
charge. & probably acts by giving a little tone.

Dr. Ogden of Long Island first gave Calomel com-
bined with opium, in this disease. Immediately after
emetics we are to have recourse to bark & K. root &
red wine. Detergent gargles were used with advantage
made of rose water, honey Amuriatic acid. Humifications
& myrrh & vinegar received into the throat as often as
the patient can bear them are sometimes serviceable.

Trachealis. Difficult. His without synochas

Th.

60. The particular barking cough is a pathognomonic sign
of the progress of the disease all the other symptoms occur
in many others Dr. Home first called it the Croup.
Dr. Michael calls it Angina Polyphora but this includes but one species. Hence it is an impro-
per name. Dr. Monro calls it Suffocatio Stridens.
In the state of Pennsylvania it is called the hives. Wh-
ich name is taken from the word hives, because in the
complaint the breast hives. There have been disputes
about the genual place of this disease. Cullen places
it among the Phlegmatis. & Monro among Epis-
titis. It may be inflammatory, it may depend upon supp-
ercreations; it may be spasmodic. That particular Cough
called by Cullen Tussis Clemosa often happens in the last
stage of the small pox, but is then only a symptom
in the Scarlatina Anginosa. Another dispute is wh-
ether it be owing to spasm or an effusion of mucus in the
form of a mucus effusion of mucus have been ent-
ertained. Dr. Michael thought it always depended on effusion.
Dr. Monro was of the same opinion. But from

The symptoms, from the method of cure, and lastly⁶¹ from dissection, there is not a doubt of there being two species, or varieties, viz. Spasmodic, & Humoral or Calarrhal.

The spasmodic is known first by its coming on suddenly, especially after the first sleep at night. Children sometimes go to bed well at night, and, in an hour after, wake with this disorder. 1. it goes off suddenly. This cannot be accounted for but by suspending spasm. 2. by its yielding to antispasmodics, particularly warm bathing. 3. its pains coming on periodically. It sometimes comes on in the evening, & disappears the following morning. Return again at the same time next evening.

The Humoral is known. 1st by its coming on gradually. Two or three days disposition commonly precedes its attack. The patients will tell you they think it a common cold only. 2. its going off gradually. 3. its continuing with uniformity, and without any intermission of the symptoms. 4. its not yielding to the same remedies as the Spasmodic, particularly warm bathing. The spasmodic

is.

62. is cured; 1st by bleeding if the child is plethoric, or
the disease attacks it in the time of inflam^g. diseases.

2nd Emetics which are powerful Antispasmodics.

3rd Antispasmodics as warm bathing, garlic,
and liquid laudanum, blisters as Antispasmodics.
Hately by stimulating cataplasms of garlic to the
orifice is great danger mustard seed -

The Humoral is treated differently. Emetics should
begin now, if inflammation is suspected, which
is known by the hardness & fullness of the pulse bleeding
may be necessary: but our principal dependence
is on Calomel in large doses from 8 to 10 grs may
be given in a day while the disease continues. This
is purgative too much, restrain it by laudanum, but a
moderate diarrhoea is of advantage. Calomel acts
by stimulating the glands of the lungs & thus
promoting a more plentiful secretion & excretion of
all the humors; and of consequence checks the effusion
into the trachea. See Rushes of says. Blisters act in
the same way viz. by their irritating & evacuating qualities.

This is said to be a disease of children only. Phare 63
known more than one case of it in adults. On facts
in the Ceynameter Trachialis, that the hoarsness
and cough continue after the danger of the dis-
ease is over; but the loss of that hoarse voice
less dangerous to be apprehended. Since Phare
adopted this principle Phare lost but one patient
in the hives, which is now 15 years ago. That case
which was the humoralis, to which few as not called till
the third day. Sweating was used formerly used with
little success which was brought on by Turnigations
Sweating —

Pharyngia agrees in many respects with
the Tonsillaris, but the difficulty of breathing is more
remarkable. Plasters are very useful in this spec^s of Cynam:

Parotidea. or the Stumps. This disease is
apt to fall into the testicles in men, and into the breasts
in women after a crisis has taken place. Trichil-
lum the swelling is apt to subfurate & become
very

64 very troublesome. The cure consists in lenient
pungent and discentient Applications.

Pneumonia. Deseⁿ in Cullen.

The pain is very often in the back, and sometimes
extends as low down as the kidney, as well as the
side & breast and even sometimes as high as the

Peripneumonia. is the first species in Cullen.

This evidently includes *Peripneumonia Notha*, which
Sydenham, Huxham have described. The pulse
is often full & soft & not hard, if the patient happens
to be seized with this disease, standing, sitting, lying,
upon the back or side, he generally is obliged to
keep that posture during the whole disease.

There is often inflammation connected with
this disease, but there is a suspicion that is often
sometimes or an effusion of blood into the lungs
occurred perhaps by irritation. The Gout
falling on the lungs sometimes produces this

complaints. Hence it may be called a kind of 65.
Plethora in the lungs or Effusion. You must not be
imposed upon by the pulse; if it is full and hard you
will proceed with more confidence, but if it is small
and weak do not fear to bleed. A Negro Man in the
Belling House was seized with a Peripneumonia. &
a man appeared to be nearly dying. His pulse was small &
weak. We bled him with the most marked success. He went
abroad the next day. This species does not go off with
expectoration. Bleeding seems to procure a complete solu-
tion of the disease. This disease is Idiopathic Symptom-
atic. When a consumptive patient goes off from the na-
tural time of the disease, we suspect this disease to have
taken place, & to have been the cause of his unexpected death.

Pleuritis is the second species see Cullens Synopsis.
The spitting tinged with blood is by no means an unfa-
vorable symptom in this disease. It is Idiopathic
or symptomatic. In the fall of the year & particularly in
the southern climates we find a Pleuritis biliosa described
by Huxham, which is a very dangerous disease. Gen.

66. Gen. Lee died of it on the 5th or 7th day. More
people die of Pleurisy in Maryland & Virginia
than in Pennsylvania, owing to its being accompanied
with a violent fever. Buxam describes a pleurisy accompa-
nied with putrid symptoms. The blood is thin & discolored
In this case the fever arises from leontagion. The Pleuris-
y is only symptomatic. It must be treated as a Typhus
with Snake root, Lett. Alk. Bark &c. The Eudiopathic is cur-
ed by bleeding copiously. This is indispensably necessary. Or
copious bleeding will sometimes cure the disease. But
withstand, it is very remarkable, that the patients require
the first bleeding to be very copious because they re-
quire a second. XVI^ʒ of blood may be taken with
safety and advantage. Then. XX^ʒ. If the first bleeding
does not relieve, the hemorrhage continues, we must con-
tinue to bleed, And be assured by the apprehensions of the patient
or an acc't of six. Females seem to bear bleeding & to
require it more than men. Bleeding women. Pthm. The
Same as in the same disease. They were both vigorous
and recovered & are now living & healthy. Once attended a
patient

patient who lost 110.2 of blood in this disease. 67
This disorder was brought on by a shot through his
spine. His name was Mr. Therson a captain in the
British army, and was wounded in the battle of Prince
Town. His recovery was very slow. So highly irritable
was his arterial system, that during the whole of his
illness, I was obliged to restrain him to water, in which he had
had been naked. He took no other nourishment. Lago,
Pisces were absolutely forbidden industriously
avoided. L. LXX. are commonly taken away. The two
women mentioned lost probably 100 each; & one of them rather
more. Next lement purges are proper. Saponil. Diaphorosis
is to be promoted by small doses of stimulative emetics.
There is a vegetable substance called Seneca Snake
root. It acts without irritating, by nauseating. It is a very
efficacious medicine in this disease. Its fisters applied
as near the parts affected as possible are of great service
They should be applied early, for hence they act as a
counter. Glisters should be used when purges
hence not the disindol effect leiz. Not stirring y. bowels
regularly.

68. *agueare.* When inflammatory diarrhoea is seen
then we must use Expectorants. After all the reme-
dies of this disease does not abate, we must have recourse
to Expectorants. *Th. Col. Alsi.* is the most proper
juice in Aug. of V. ℥s every two hours. Demulcents
should be prescribed, when the cough is troublesome
for the natural mucus of the Throes being abraded,
even the air will induce a cough. *Flax seed Tea* is
best known accou with many people in this disease.
Bram Tea is also proper. When a patient has been
in the habit of drinking spirits, it may be proper to
add a spoonful or two to these demulcents, in order
to induce him to drink larger quantities. To make
a demulcent boil the Bram for half an hour, then strain
it, add sugar or honey, & the juice of a lime or lemon.
Flax seed tea may be made in the same way. This
makes a most agreeable drink, & it is consequent to
make drinks as agreeable as possible, in order to induce
the sick to drink more freely. As soon as an impatient
resolution

resolution & expectoration proceed, we must give 69.
pum if an irritating cough attends. Emetics
are said to be proper, but come with more advantage
after a resolution takes place. When the patient seems to
relent under the weight of the matter in the lungs, which
he has not strength enough to throw off, gentle vomits of
Yucca are to be preferred: an inhaler should be
used through which the patient must receive the
smells of bran-tie. Dr. Lepre gave down of a
tincture made of camphor & camphrides, by which
he used to excite an inflammation in the urinary
passages, it did no good until this effect was produced.
In desperate cases it may be admissible, it acts upon
inflammation looking off another. Pleurines are
apt to terminate in Bronchitis or Emphysema. & even
fatally, too in the act of respiration. For their definition
see Leucov's Synopsis Lowne's Surgery. Bronchitis is one of the
most frequent causes that produce consumption,
but is the least fatal. Hence we should not abondon

70 our patients when a cornica is formed. If the patient is not of a consumptive make, especially if the season of the year is such, as to admit of using vegetables & milk diet with moderate exercise there is reason to hope a cure. Young gentlemen recovered from a Pluritis which terminated in a cornica & Empyema, when got able to go abroad he went to Portugal, where he so far recovered his health as to marry. —

Carditis. This disease says Rush ~~Know~~ nuerum, the Synoeca is said to be its most distinguishing Characteristic. The synope is also a symptom of it, happening without difficulty when in erect posture.

Peritonitis ~~Know nuerum.~~ See Cullen.
Gastritis is of two kinds, and is a common disease. Differ in Cullen. It is often Gastric, or at least from internal causes as any acid taken into the stomach, for instance Arsenic. The

The most frequent cause in this country is 71.
old drinks; they will sometimes produce sudden
death. Three circumstances must concur that
they produce this disease: 1. extreme heat of the body
2. the liquor must be very cold 3. a large quantity
must be taken in. The symptoms which occur in this
disease are weakness of the limbs, giddiness, spasmodic
Convic or Tonic. This disease is prevented by cooling the
body diminishing the quantity of the drink, or by
receiving the first shock on the hands & face.

When this disease comes on Laudanum is the
only remedy. Comfits are improper. An inflamma-
tion of the liver & sometimes Chronic diseases are
occurred by cold drinks. In the cure of Gastritis,
bleeding, blistering, diluted acids, & demulcent drinks
are to be exhibited. Gastritis Exsudativa is of the
Pronic kind. It is more common than we are
able to imagine.

Enteritis is more common than Gastritis, 1.

72 is produced by acid matter taken in, especially by
the Cholic. Hence, bleeding is necessary in almost
every stage of the cholic. Dose: in Calum. Pulse
is of the Sypnus kind. Cure. The same as of Gastritis.

Hepatitis See Cullen's Synopsis. This disease is more frequent than the foregoing. The pain sometimes extends across the left Hypochondrium, on account of the liver being enlarged by the inflammation. This disease is sometimes taken for a pleurisy. Sometimes a yellow colour of the skin & frequently of the eye attends. It comes on sometimes like a Colic & this is the worst kind. The Hepatitis is either acute or chronic, the latter sometimes comes on like a Jaundice, the yellowing of the eyes more frequently attends this than the acute species. That, inflammation, suppuration, or ~~gangrene~~ is ~~present~~ from Gangrene may take place is proven from dissection. The pulse which is hard will always indicate the progress of this disease, hence this is a sign that there is no hepatitis without topical inflammation somewhere. When

73.

an inflammatory humor is present, we may always
conclude that there is inflammation tho' it may
not be concealed, and a Physician gains credit by affirming
that the pain will come on. A stone in the bladder
produces irritation on the Glans Penis, & a stone
in the Kidney will produce vomiting, hence there are
two instances of impression in one place, & sensation
in another. The Chronic is said to affect the Paren-
chymatous, while the acute affects the membranous
part of the liver. This disease occurs most frequently
in warm climates. The Cure consists 1st in exhibit-
ing Glisters & bleeding copiously 2nd in giving calomel
in large doses. This was first given in the East Indies
now it is administered universally. There is congestion
in every case of inflammation especially that of the
liver. Calomel is an universal stimulant & promotes
greater secretions & excretions. It promotes the afflux of
humors to the stomach & intestines, & consequently lessens it
in the liver. The quantity may be given even to 100 gr.^{es.}
Mercury seldom salivates when a fever is present. Plasters
are very powerful and should be applied large & directly over.

74. over the part affected. If the inflammation is on the outside of the liver, it has terminated in an abscess, it points outwardly & should be opened as a common abscess. But if from chills & the appearance of ~~right~~^{right} heat & evaporation of the internal part of the liver, the thoughts not to be used, you are commonly obliged to wait the operations of Nature or endeavour to break it off by emetics or purges —

Splenitis. I have nothing to say on this disease, but what you will find in Dr. Cullen.

Nephritis. *see* Cullen. It is more common than the latter disease. In this urine is red, the vomiting is a Pathognomonic symptom, the drawing up the testicles in men. There is one symptom which Dr. Cullen has not mentioned viz. a Cholic. The Nephritis is seldom Paroxysmical. The symptoms come on by grave falls, strokes, or, or straining in the back, riding about ^{about} riding horse &c. *Cure.* This consists in bleeding, Lenient purges which are best in a liquid form & plasters. The effect of which is wonderful, for the colon you know lies

is in the directly across the kidneys. Turn as a fomentation 45.
it when filled with an emollient glister. The warm bath
and demulcent drinks are of consequence. This may
be made of Flax seed or bran, after this Anodynes
must be given, Emollient fomentations applied to
the back or warm water inclosed in a bladder has
been found useful —

Cystitis. in Cullen. It often comes on without
any evident cause, but often from the use of Cantharides,
from wounds & infections. The infection of Sac: Saturn:
has sometimes produced this disorder. It happened to a
patient of Dr. Cullen in the Infirmary of Edinburgh.
The humor is inflammation, hard pulse, the blood very thick
the patient keeps up Sweats about. The Fever is not gene-
rally violent, this inflammation moreover seems to be Chronic.
Dr. Bond informed me what he knew of an inflammation that
bore or required such frequent bleeding as Cystitis. Besides
bleeding we must use lenient purges, blisters, demulcents,
Anodynes. When bleeding has not been used sufficiently it
terminates in Scirrhous Ulcers or paralytic. Opening the

76 The breasts frequently by emollient glisters ~~such as~~ when ~~such~~ occurs, drawing off the patients water frequently by the cathartick are of great service and towards the end moderate doses of opium.

Gisteritis. See Culpeper Dr. D

^{J. Dulm. M. Com.} his written very learnedly on this disease, it is my advice to read his work. It is an inflammation of the womb brought on by difficult labour &c. The prevailing of this disease, is in the beginning Synochia, then, goes into Typhus hence authors differ in the method of cure. In summer of Typhus gravior is induced, owing to the Septic Diathesis which then prevails. It is of consequence to keep your eye upon the prevailing Epidemics of the season. When this disease occurs in the season of inflammatory diathesis, the fever commonly lasts bleeding 3 or 4 times: but if it occurs in the season for Intermittents you must be very cautious how you bleed. Patients especially women after lying in are very apt to bleeding, but then you must be firm. Emollient glisters & topical applications are useful, stimulant fomentations & incipient cataplasms to the abdomen are serviceable.

Phur

Rheumatismus. in Cullen. It is Idiopathic or
Symptomatic. The former again is divided into Chronic
Acute. The cure of the Acute consists 1st in bleeding especially
as it is an inflammatory disease 2nd Calomel or mercurial
Ointment, being applied to the part affected. Dr.
Hamilton in one of his volumes of the medical commentaries
has published a treatise on the use of calomel in all kinds of in-
flammation, but I used it before I saw his piece. If inflammatory
symptoms appear bleeding is the chief remedy; lenient purges
blister, topical bleedings. I calomel given in the quantity
of 10s. IV. poiss contained with Opium also rectified Tincture
Emetic. In this case Blisters act as evacuents. The Chronic
Rheumatism is accurately described by Cullen in his
Arthrodinia. The cure is different from the acute. The
great Desideratum is to restore the perspiration 1st by
Remedies 2nd by the warm & cold baths 3rd Stimulants
drinks, as sassafras tea, which is astringent, aromatic
and stimulating drink. The volatile tincture of Spiritum
licet has been used with much advantage. For this effect
it

70. it may be given from a tea- to a table spoonful & in
a day. It drains of different kinds as fuscous, scatous and
actual cauter. 5. Salivation, few instances of Chronic
Rheumatism, resist a salivation. 6. when all these
fail, a warm climate will be service, to which the patient
would be confined for 3, or 4 days, if he wish to cure the
disease radically. This acts not only by the exercise of
sailing but by the warmth increasing the perspiration.
With regard to exercise ~~riding~~ on horseback is absolutely
injurious, for when we ride, the joints most affected are
not exercised, wherefore it must be forbidden. A remark, that
I have made, that is not mentioned by authors, is, that
this disease afflicts old soldiers & officers, especially owing
to their intemperance, the frequent change from heat
to cold, but principally the former. The symptomatic
species of Rheumatism are very numerous. The female
constitution in pregnancy is more disposed to inflam-
matory diseases than at any other time. This arises
from the irritation occasioned by the distention of the
uterus. Pains are more violent here than at any
other time

Odontalgia

Odontalgia. or Tooth-ach. Caries of the Teeth
from effusion arises in this manner. A Rheumatism seizes
the jaw which extends to the teeth & renders them ever after
 liable to a return of this disorder. My reasons for supposing
 this are the following. In the Torrid & Tropic zones, the tooth
 ach and all other inflammatory diseases are scarcely ever
 found. It is only in intertemperate climates where change
 from heat to cold are sudden that inflammatory com
 plaints are prevalent. There is another cause of this
 disease. Vir. Scrophula but this acts only by producing
 Rheumatism. When the tooth is much decayed, the best
 method is to extract it, but if it is nearly sound the disease
 may be prevented, by stopping up the hollow of the
 tooth with tin-foil or gola-leaf or burning of the nerve
 with a hot knitting needle. The cure of the tooth-ach
 consists in bleeding, blistering, purging, & opiates.

The Rheumatism of the jaw is prevented by pro
 ducing an equality of heat, w^{ch} is to keep the teeth in
 the same temperature as it were. The French always
 sleep with a woolen night cap & they are deserved to
 have

80. here the last teeth of any people. In the day time
the exertion of the system is generally sufficient to pre-
vent ill consequence from the cold: but at night
the system is relaxed & consequently more liable to
affection. *Odontalgia granularum* occurs
frequently from the plethoric state of their system, which
renders them more liable to all kinds of inflammatory
diseases. It is frequently an attendant on syringoma
that women sometimes determine this circumstance
by its appearance. In some cases it appears before
the nausea. Dr. Hunter supposes that to obviate the
effects of Pethora, for which, nature has wisely instituted
this sickness: thus, restrain the ingesta, by giving
the patient a dislike for food for three or four days.
This seems indeed to be a probability in this con-
sideration. A mode of protracting teeth has lately been attempted
in this country. A sound tooth is taken from another
person & put into the socket from whence the decayed
tooth had been drawn. The tooth introduced is a piece
of dead matter & no circulation ever takes place in it.

This

This we prove from the tooth at its root being ^{81.} ~~broken~~ found in 5 or 6 years, when it falls out, which it certainly
will do, after a spongy ~~decayed~~ ^{decayed}. That disease which
frequently happens in consequence of placing teeth, is
not unusual, but as Dr. Hunter supposes is produced
from irritation, occasioned by the putrefaction of the
tooth newly set in. This putrefaction arises from the custom
of putting in fresh teeth. Hence it is probable that dry teeth
would stand as firm ~~as~~ ^{as} last much longer, for we see that
a dry post set in the ground will not rot ~~so~~ ^{so} fast as a
green one. A dentist of this city put a pig of wood into
the jaw of a dog, & found that it became as firmly
fixed as any tooth.

Podagra in Cullen. It is divided into 4 species
viz. the regular, atonic, retrograde & reverting. See
Cullen's first lines, also consult Sibdenham on this
disease, & Warner's treatise on the gout. Thine Mr. Warner
was a clergyman. Upon being affected with this disease
was led to study it. Having reduced himself published
his remarks. His theory is absurd. Warner

Whence it is difficult to discern between Gout & Rheumatism. If affections of the stomach have preceeded, you may affirm it to be the Gout. These are pathognomonic symptoms.

The Gout is an hereditary disease and does not depend on morbid matter, but a peculiar conformation, when this is strong, it sometimes occurs as early as 5 or 6 years of age, but most commonly at 12, or 16. When the hereditary disposition is weak high living will bring it on, tho' it might not have been the cause occurred. It sometimes passes away and seizes a grandson. This may arise from the son having resembled his Mother more than his Father, or from his having lived very temperately, which reduced the hereditary disposition or from the Grandsons having lived intemately. There are instances of its attacking women who lived intemperately.

The Gout counterfeits all diseases, attacks all places and parts of the body. I once observed this complaint in the case of a Col. Adams. Sir James Fay observes that he had seen one Brit.

Arthritic Salivation very copious. It seizes the 83.
head, throat, breast, & stomach; also the kidneys &
penis producing a Gonorrhoea tunica; & especially
Peripneumonia & pleuritic symptoms, vomiting
& nephritis attend; also the waters of the bladder are affected
producing what the French call Catarrh of the
bladder. It affects the rectum producing piles, with
great pain. I have seen a fit of piles as certainly owing
to gout as ever I saw vomiting or headache. A gentleman
had this disorder from intemperance, & it is
remarkable that if he sat any time in a room with a large
company, & when candles were burning, he was seized
with almost acute pain in the rectum, & was obliged instant-
ly to leave the room, & when he got into the fresh air
left him. Here is an instance of the sedative
effect of desphlogisticated air. A very frequent disease
which it produces is a diarrhoea fuscum, that
that when a diarrhoea continues very obstinate
through life, it is an Arthritic complaint which by
habits of intemperance, is brought on the temples without
affecting the feet. It is a maxim in all chronic

chronic diseases of children, when the cause is not evident to suspect worms; in antichronic complaints of women to suspect the uterus, common men to suspect the gout, especially if the cause is capable of producing it hence proceed. Plum Gout is a swelling of the lower extremities, without pain, the adenatous knee; it commonly goes off about the same time that a fit of the regular gout does. Its appearance is sometimes alarming. Is there a radical cure for the gout? It may be avoided radically, except it be of the Atonic species, which is not to be radically cured. The cure is determined by abstaining from acts of intemperance, & confining the patient to a milk & vegetable diet, & by labour to prevent plethora. The reason why the gout is so seldom cured, is that the person afflicted with it, will not be restricted in, or obliged to change his method of living.

Treatment of the Fit. This imp-

is impossible ever to find out a medicine that will 85.
com radically cure the gout. Medicine may palliate but
com cannot cure it. The Duke of Portland's powder was cele-
brated as a cure, & by its stimulating quality, it seemed
to have this effect, but every one who used it died afterwards
with Asphyxy, Paraly &c. **Tonic Gout.** During
the fit of this species of gout it is possible to help the patient,
but it is wrong for a physician to turn his back on
such a person, as for that person to refuse the aid of medicine
would then be great diathesis, you may bleed, this was
Sir James'ays remedy by which he cured a gout as
easily & as suddenly as you cure a Pleurisy. We
must use this remedy cautiously only in the tonic species
of young persons. It is gotten into disrepute ~~from being~~ ^{used} from being used indiscriminately by Sir James'ays.
Lenient Agents & purges are proper to take off the inflam-
matory diathesis. Sulphur is supposed to be the best
remedy in this species. But this belisters are very proper also
Dr. Chalmers of South Carolina was afflicted with the
gout & used to cure himself by applying a blister to the

86. The part affected. From him I learned the use of them. He was seldom confined above 48 hours with it. They should only be used when the gout does not shew a retrocedent disposition. When the patient will not submit to blisters, the Col. Alk. should be applied to the limb, Opium may also be used. The Col. Alk. is apt to produce retrocedent gout. It is supposed from some experiments that Cola may be of service from the analogy of Gout to other inflammations. This is Dr. Small's opinion.

Stonic Gout. Treatment of the fit. When it affects the stomach and bowels, we must use strong stimulants, as wine Col. Alk. porter and opium. Porter is excellent when putting attends. A gentleman who had a vomiting which resisted blisters, opium & many other remedies and had continued 40 hours was cured by porter. The treatment of the retrograde & wandering gout is the same. It attacks the head, the remedy for aposphyxy is to be used; if the stomach wine, Col. Alk. spirits, porter & opium. Dr. Small says that in the Stonic Gout, if

Then favours be given as soon as the first symptoms
appear it seldom fails of removing the disease, of this
we have no experience, as a physician is seldom called
soon enough. After 40 years we must only bateate.
It is highly improper to change the mode of living
after this period, except under certain circumstances:
as when their Ancestors have been long lived or when
apparent to be a great vigour of constitution, for thus
either die of Consumptions Palsys or Apoplexies.

We may restrain the diet & make it moderate, but by
no means allow one. When we cannot make people
temperate, we must endeavour to prescribe the drink
that may be indulged in. Madeira or Sherry
wine is least apt to produce the gout, then weak acid or
red wines, which contain much acid (and little spirit)
capable of being endured by the stomach. Cider is a very
improper drink but it is rendered less so by quenching
red hot iron frequently in, by which part of the iron is
calcined & dissolved by the cider. Wild fowls and animals of
all kinds are more easy of digestion than tame: and

88. and full grown animals more than young. Let us
endeavor to prevail on them to eat boiled meat which
stimulates less than roasted. This more easily digested. Let
us keep up perspiration by flame, for we see the gout
occurs less frequently in warm them in cold climate
and in summer them in winter. A now all uncommon
exercise, that kind which calls the affected muscles more
into action, hence the benefit of walking; riding, &c. &c.
in cases of Arthritic Gout is rather hurtful. Walking
should not be used to excess, was to fatigued, moderate
exercise strengthens, while too much debilitates.

Arthropusis. Diff'ren Cullen,

This disease has been called the Rheumatism, terminating
in an abscess. It does not yield to mercury or bark, or
even opium. The two cases under my care, which ter-
minated favourably, was cured by a plant which
grows spontaneously thro' this state called here Thorough-
wort, & in south Carolina Persicium, because it stalks
perforates the leaves —

Order

Order 3^d Ecanthemata ^{89.} Diff. see Cullen
Variola or Small Pox. Diff. see Cullen

This disease comes on with a pain in the pit of the stomach, vomiting and a pain in the back, which is more acute than in any other disease. The Eruption begins on the third day and ends on the 5th in the distinct; but in the confluent it frequently begins on the 1st day and is always dangerous. About the 3rd or 4th day the eruption begins to subside and dry, but when these are very few, they dry sooner, and that sometimes without scarring at all. The small pox are either distinct or confluent. Sydenham & Hillary have written accurately on this disease. Is it not judicious to discuss the small pox before the eruption? Dr. Hooverhauser & Hillary thought so, & said that mercury and Antimony would have this effect. When this disease comes on with Synocha, the remedies are bleeding, purging & vomiting & sweating, by this means reducing the patient as low as is consistent with life. Thus in some cases the disease is rendered mild, when, if it had been suffered, the

90. The disease would have probably been confluent & have carried off the patient. The fever accompanying this disease is either Synocha, Typhus minor or grave. You must therefore regulate your practice accordingly. In some cases of distinct small pox, Pneumonia, on which must be treated as if it was idiopathic.—

Pneumonia sometimes occurs when the eruption begins to turn or suppurate, in this case Catomel given in such quantity as to produce a will be of service. Previous to the eruption the mucus collects in the butter, but after the eruption when Pneumonia occurs it is rather hurtful, however it may be used with advantage when the Typhus appears. It is a good custom to open the nostrils to prevent the fit which the disorder commonly causes. Punging is serviceable towards the end of the disease, however it gives them a disposition to eruption, which 3 or 4 gentle sponges will carry off or remove. For the method of inoculating refer you to Dr. Cullen.

Varicella Dr. Cullen. This is an insignificant disease and deserves nothing to be said on it. Refer you to Dr. Cullen's "Rheumatology".

91.

Subeola. so called Diffn. In this disease
the Synocha & Catarrh occur more frequently in
winter, than in summer. It is said sometimes to be
frequently accompanied with a Typhus. When Synocha, Catarrh
a.c. Pneumonies occur in the measles they are to be treated
as if they were Idiopathic, by bleeding purging &c.
The treatment of this disease with respect to cooling
is contrary to that of the small pox, for as catarrh &
near here cold is always hurtful, a moderately warm
regimen therefore is preferable. This disease is neglect-
edly frequently terminates in a Pthysis. If the pulse
be hard, bleeding & a vegetable diet continued for 10,
days will be necessary: but when the disease appears
with more Catarrh than usual, it may be necessary
to continue it as long as 10. weeks. The body should
be kept moderately warm during this time.
After the disease is cured purges are always improper
for this being more than a cutaneous disease, it
always affects the lungs. Who would give Draastic

92 Drastic Surges in a Sthixis. By vegetal
aliment, the violence of the disease may be reduced,
as it lessens the inflammatory diarrhoea, and, of course,
the determination to the lungs. inoculation in the
disease is of no advantage. It may be performed by
wetting a piece of thread in the tears & applying it
as in the small pox.

Scarlatina *Diff.* *as Cullen.* In this country
this disease is not always Sycnocha, it is more frequently
by a Typhus mitior & sometimes gravior. It is either
simple without any other affection, or attended with
eruptions of the Fauces. Sydenham has accurately
described this disease, when simple or unattended with
eruptions of the Fauces. This species occurs but rarely.

Scarlatina Anginosa, or *Cynan-*
chica *of Cullen* is more common. This species
has ^{been} thought to be the same disease with the *Cynanche*
Maligna but it is a mistake. They certainly may
be distinguished. Dr. Wetherhill has described them

their diseases accurately, he says the eyes in this 93.
diseases are red and shining and in the maligna watery.
In this the eruptions in the throat are white, in the
maligna commonly black; in this the breath is hot;
but not offensive as in the maligna.

Multa desunt.

Order 4th Haimorrhagia

Def. sub Cullen Synopsis. Hemorrhages I have seen
divided into Acute and Paspine. The acute are occasioned
by Arterius plethora, & the Paspine by a venous. The acute
occurs in youth, the Paspine in the decline of life. From the
age of 36 to that of 40, ordinarily there is a struggle between
the arterial & venous systems; that period of life is generally
attended with diseases. Among which are 1st Headach
which seldom goes off till the Pletora is shown on the
veins; 2^d Diarrhoea occasioned by the Pletora & caused
by bleeding; 3rd Piles. The Pletora being thrown on the
hemorrhoidal veins, this occurs at this period of life often
than all my other. Th. Dyspepsia, Hypochondriasis &
Hysteria are sometimes produced at this time. The

94 The age of puberty. At this time the system undergoes a change which is not produced without some disease, as pains of the breast & Throats, a cold, cough & Plethora relieved by bleeding & moderate and moderate exercise on horseback. It is of consequence to rescue young people from sedentary employments, which frequently lay the foundation for the consumption and other incurable diseases. So much for general abstinences or hemorrhages. We are now to speak of general remedies during the paroxysms. The first is cold, which must in this case be used in such a degree as to become sudative, for a moderate degree of cold is a certain stimulus. In battles many wounded soldiers owe their lives to being left on the ground all night in the cold weather, the cold provoking a sudation stopping the flow of blood. 2^d Next to cold is bleeding which must be used with great caution. If the pulse is hard and full, bleed, but if the effusion has taken down the force of the circulation, bleeding will be hurtful

huntsup. 3. Opium. 4. Neutral Salts and an 95.

earthy salt called Alum. 5. So soisters have been
blotted and applied as near as possible to the part
from which the blood issues. The blister acts however
as an evacuant & antispasmodic. When it acts as a
stimulus, it must be improper. 6. Gentle laxatives
will be proper to lessen the tension, & determine as much
as possible the force of the circulation from the bleeding
vessels. How are we to prevent Hemorrhages.

They are prevented by abstinence, particularly
from that aliment which produces most blood.

2^d by using that kind of vegetable diet, which
contains the least nourishment. Vegetable sub-
stances are said to be nutritious in proportion
to the quantity of sugar they contain 2. to the
quant^{ty} of oil 3. To the quant^{ty} of mucilage.

3 They are prevented by constant & moderate
exercise which gives tone to the system. For Plet-
hysa depends upon relaxation, hence the heavy
labourious countenance is not plethoric.

Partic

Particular Hemorrhage
Epistaxis. Dr. J. Cullen. Before we enter upon this subject, I would beg leave to remark that there are certain persons subject to an Hemorrhagic Diathesis. When this is the case, the old caut & streak have been used with aduantage. Epistaxis is either Paroxysm or Symptomatic, and occurs in the head as well as in the gang.

CURE. 1^o This consists in trying cold applied to the neck, or to the scrotum which is much more sensible to the effects of cold. Dipping the scrotum in cold water hardly ever fails to stop the bleeding.

Warming the face will sometimes cure it, but if it has not this effect immediately it commonly acts as a stimulus & thus increases the discharge. 2^o When these remedies fail we must introduce dry plugs of linen or lint, so as to completely stop the nostril. This plug must remain an hour or more & sometimes for two or three days. If it should slip out, we should introduce a dry one, for the dryness of the plug depends

the success. Common salt has been used with 97
advantage in Epistaxis. in the manner hereafter
to be mentioned, under the cure of Homoptysis. But
it is absolutely necessary that the patient should not
raise it up.

Homoptysis. Dr. in Cullen's Synopsis.

in the species symptomatic or Iatropathic. in Cullen's Synopsis.

A spilling of blood occurring in consumptions is commonly
a fatal symptom. A suspension of any usual discharge
sometimes produces an Homoptysis. The symptomatic
arises from Catarrh. Measles, Smallpox &c. In the
smallpox it is an alarming symptom indeed. The cure
consists in bleeding. Opiates, acids, & avoiding violent
exercises especially lifting weights. Bleeding is general
by absolutely necessary. After bleeding opiate, then
acids, as you lastea with vinegar. Rest of great conse-
quence should be strictly enjoym'd. Armudys has
been lately discovered for the Homoptysis, which renders
the most of the other unneccesary, is Common Salt.

which

which to be now is the last that would occur to a regular practitioner of I have heard and known of more than 100 cases in which it has proved serviceable. The dose is from a tea to a table spoonful, which generally cures the disease, but should be repeated in 3 or 4 days after to prevent the return of it. The salt produces thirst, a sense of burning heat in the fancies, & sickness of stomach. Those persons who use their lungs much, as the Gunners who sing much. Players, Lawyers and watchmen are seldom affected with this complaint. This Hæmorrhage generally occurs in debilitated health and at a time when the lungs are in a passive state, as walking, sitting, lying &c. One may well suppose that common salt, by irritating the mouth and oesophagus, communicates a stimulus to the bleeding vessels & thus prevents the future effusion? But the use of common salt should not supersede bleeding and the other remedies. —

Phthisis

Pthysis Pulmonalis

99

Diff. in Cutler's Synopsis. It arises from homoptesis
able. Also sp. asthma, catarrh, or tubercles. Tubercles in
most cases arise from Scrophula and are go-
days usually incurable. It has been supposed that in
Great Britain 22000. die of this disease. These
common remedies are 1st bleeding while the
pulse is hard or the blood dry. 2^d a milk vegetable
and diet 3rd avoiding all kinds of irritation 4th deter-
mining to the surface of the body 5th making
artificial drains, they means of fuses and bleisters
takings of the determination to the lungs 6th An
aqueable atmosphere. The climate of Barbadoes
is esteemed favourable to consumptive habits. Lisbon
has been found to unsavourable. These are the
common remedies. A fact that may direct
your attention to useful observation on this sub-
ject is, 1st It is unknown among the Indians
in their natural state. 2^d It is scarcely known
among

100. among the Inhabitants whose lives most
nearly approach that of Savages. The life of the
fishers of this country comes nearest that of
the Indians. The consumption, it is deserved, is
very rarely among them. ^{3d} it is less common
in country places than in cities, and increases
with intemperance, and sedentary modes of
life. Ship, & shore carpenters, miths &c. whose busi-
ness requires exercise in open air. Such a diet
is not generally very luxurious, seldom however
consumptions. 5th Women, especially those who
lead a sedentary life are more liable to consump-
tions than men. From these facts, we may hope to
prevent consumptions, by desiruing the imitation
of their ^{variety of} manner of life. I shall examine here only a few
of the vast remedies, which, at one time or other have
been famous. For this is a dreadful and fatal disease
and endeavour to shew that the efficacy of the
most of them depends on the exercise and air

which successfully accompanied the use of them.

2^o Short sea voyages have sometimes proved beneficial, because of the almost constant exercise.

3^o Change of climate has been recommended, but I don't remember to have heard of its curing consumptions, unless accompanied with travelling in the open air. 3^o Journeys have often performed cures, but chiefly when long and accompanied with difficulty, which rouses the strength of mind and body. 4^o Comfits of nauseaating medicines have been often recommended: but I do not remember

an instance of their having cured when unaccompanied with exercise. 5^o Bleeding has often relieved, but it is only by taking off the inflammatory diathesis, which exercise would have done

much better. 6^o Regulated diettes and stimulating the gummis have been of service, but it was when there was great debility. 7^o A plentiful perspiration excited by any means has often prolonged life, but

102. but tho' cannot be properly kept up, without
exercice and that in wholesome air. O' ^{the} best
setons, & spissas become in like manner & from
to carry of the redundant fluid, which ought
to have been dissipated by moderate exercise.

2^o Swinging acts in the same way, and is they
a gentle and agreeable exercise ^{for} substance for exercise
From all these facts, it is evident, that the
remedies for consumptions must be sought
for in the exertions which throw off most plente ^{with}
suffly. 1^o I have known men cured by the hor-
-ship of a military life 2^o During the war before
last a Mr. Lowns was carried away by the
Indians & kept by them for a considerable time ^{later}
He was dragged from them when ill of a cons-
umption; but the simple and rough living of
the Indians, which he was obliged to submit
to, cured him; nor did ever the disease return.
These facts are sufficient to establish the utility
of those laborious exercises which I have enumerated

Where Brooks, Woods &c. are wanting,
substitutes may be obtained for them, and Dr.
Sydenham pronounced riding on horseback
as certain a cure for consumption as bark for the
Intermittent which I do as certain by belief as
that inflammatory fevers are more scarce now,
than when Sydenham wrote

3. Agriculture, if at the same time accompanied
with farmers diet, and hard beds, is useful.

4. Such occupations as oblige long exercise in
the open air. The more feeble a constitution is, the
more laborious should be the way of life to prevent
this disease. 4th Dr. Small relates a case of the
old bath being efficacious in the cure of consump-
tions. I have heard of a similar instance of a
negro in the West Indies. We may prolong life
by using the debilitating method only.

There is certainly an inflammatory diathesis
connected with debility, which prevails more
in cities than in the country & in women more

104. more than in men. It happens to arise from inductive delirium, as it is called. It is the presence of this species of inflammatory diathesis, which renders consumptions more difficult to cure than formerly. It is this that renders riding on horseback so ineffectual. If it were possible to regulate the tone of the system by a scale I would add that the system should be raised to the greatest degree of tone to cure consumptions.

When inflammatory diatheria ^{prevails} a vegetal diet is proper, but when the disease has passed this period, think from expusion of meat may be taken in a moderate quantity. The leek has been given with evident advantage, when there has been a total absence of inflammatory diathesis.

There is a man in one of the back counties of this state, who, it is said, is famous for curing of consumptions. His remedies are, lying out of doors, with a fire at the patient's feet, and the use of snow

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Homorrhoids. Diff. of the diff. Species & approximate
cur. of which in Cullen's Practice -

This disease is frequently caused by consterness; hence
sedentary people & those who ride much on horse-back
are most frequently troubled with it. It sometimes
comes on with the symptoms of Pyrexia, & must be
treated like other active Hemorrhages by bleeding
and lenient purges, of which sulphur is common
by word. The Butternut Pill is a gentle Laxative
but as it possesses some narcotic power it is not
safe to use it any length of time. There are many
instances of many people dying of this disease
being seized with palsy from the habitual use
of this Medicine. Dr. Magaw's remedy for
relieving consterness was to make the patient
every day at a certain hour sit on the Colon stool
by which means the evacuation at that time
became habitual, & thus the use of all evacuants
became suspended. Also is the most improper

2. Laxatives may be used, for it frequently is the cause of the disease. To relieve the pains various applications have been used such as equal parts of Opium ground with oil, a Venice bracket plas. in unguen. Stramonium which is very proper as having a wonderful property of allaying irritation. In making the ointment it should not be suffocated to oil. Tar ointment is a good application. This disease has been cured by an ointment made of white lead & sweet oil in equal quantities applied three or four times a day.

A moderate vegetable diet will be proper, because it affords less blood and is more appetent. When persons have been used to bleeding we must suppress it with great caution.

Avomiting of blood from the stomach may frequently deserve to occur in hard ticks, & in consequence of accidents, as a blow upon the region of the stomach. A violent shock will sometimes occasion it.

gentleman whom horse stumbled last ^{3.}
did not fall was taken with a vomiting of blood
The remedies are Liquid Sard. 2. Com^r Salt
which I have once given with success. 3^o cold water
taken into the stomach or applied externally.
I have lately seen great advantage derived from
the application of a napkin dipped in cold water
applied to the epigastric region, in such cases
often minutes the hemorrhage ceas'd. If this
had failed I would have ordered glisters of cold
water to be injected. I have had no experience of its effects
Should these fail Spt. Toulmin^l. may be given. It may
appear strange to order stimulants in such a case,
but if we consider that in passing hemorrhages
futility prevails we can easily conceive that stimulants
give tone to the parts of the part and thus stop
the hemorrhage, hence in this disease they
are absolutely necessary. ——————

abdomen.

4. *Menorrhagia* *Defⁿ in Cullen.*
Tis a common remark that Childbearing takes
place only during the Menstruation, but from the
authority of Dr Hunter we understand that
woman often bear children both before and
after menstruation. Pregnant women sometimes
have the menses, & that monthly during the
whole period of gestation — Smell's mentions
this here we should not be surprised at it.
Tis supposed this evacuation is from the vagina.

Hemorrhagia Uterina is sometimes connected
with tension and sometimes with debility. To in
both cases is nearly the same. The first thing
to be done is to recommend rest on the back, because
in this posture few muscles are in action. You
can seldom cure a Menorrhagia when the
patient continues to walk about. If the
patient is of a full habit bleeding is necessary
but we meet with few cases which require it.

Opium is an excellent remedy. Dr Young of
Edinburgh entertained the highest opinion of Opium
in this disease. Cola air is also found to be
the excellent. as also cold water, Vinegar likewise
is serviceable. Flour thrown upon the bleeding
part has been found to form a Strombus by
concocting the blood & absorbing its impurities.
Mum may be given with success from X to XX
gr. three times a day. The recurrence of this
disease depending on Pithora is to be prevented
by moderate diet & occasional venesection. A sat-
isfactory passage, after some time active exercise as
walking riding &c. When it is connected with
debility we are to use Tonics, as Bark, steel, active
exercise & cold bath. Plasters are proper when
there is a dropping only. They act as evacuants
the spasmodics or Tonics. They should be applied to the
right, as high up as possible. Ipecacuanha
has been much & justly recommended in this disease.
It acts as a tonic. A Reciprocal conjoint delight

6. Through the mitigation of the ramifications
of friendship is with ^{out} ducity in totality in admis-
Excursions in the country have been annihilated.
Rousing up the perspiration by foment is necessary.
The Menorrhagia aborta is unfriendly to child-
birth & most miscarriages are brought on by it. It
may be alleviated by occasional bleeding. Because ^{stagnation}
the health of pregnant women ^{is} Pethoric.
Wear to use bleeding when we cannot persuade
her the necessary remedies from VI to VIII
should be taken away once every month for the
four or five first of her disease.

Leucorrhœa may be easily distinguished from
Gonorrhœa by its being accompanied with chronic
diseases. It is a great enemy to child bearing
tho it do not always prevent it. As we
consider it a disease of the whole system, we
attempt the cure of it by general remedies as
Bark, Steel, Cold Bath, Exercise, Turpentine &c.
sometimes the matter is so acrid as to produce
ulceration 'tis then difficult to distinguish from

Catarrhus Def: su Cullen.

7

There are two species the first from cold the
second from contagion. That we are capable of
acquiring it from cold is certain, but whenever
Catarrhs are universal it is presumed that they are
from contagion & have not doubt of its being a
contagious disease, than there is of the small pox
so great a degree as to extend over the whole continent
in two or three times. The Influenza of the Italians is
the same disease we often find children only affected
by it & at other times grown people & there is a species
that affects cattle only

There is an Island in the west of Scotland, to
which if a stranger goes from any country whatever
within three or four days after his arrival all the
Inhabitants are seized with a Catarrh. This fact
related by the Rev. Mr. Cawley. It is supposed to depend
on the inhabitants living on very low food, while y.
stranger from having lived higher had a certain
humidity in his perspiration which occasioned irritation
produced this Catarrh. It has been observed that

8 That men of different countries being suddenly brought together become sickly by the difference of perspiration & breath. This was remarkably instanced in the late war by the camp fever while the army lay at Cambridge A.M. 1775.

In the New England troops amounting to 15,000, no such fever was seen. When the armies met at New York from the different states the fever raged with great violence. The Indians know nothing of Catarrhs nor they do of colds.

Respiration is thought to be specific, as dogs commonly distinguish their masters. In an assembly in this city ^{consisting} of an hundred persons every one of them was seized with a catarrh. This undoubtedly was from contagion. Most Consumptions arise from neglected colds. Dr. Nagaw used to say that the plague only was worse than the cold. The patient often suffers much from being able to walk about before he applies to a physician. What is death else than a very great cold? Bleeding is frequently necessary in

in this disease. Gamgee never failed of curing him by
washing a sallet having at bed time. This acted by
exciting thirst. Demulcent drinks as Flax seed tea
from tea, barley water boiled with raisins;
sugar candy, milo oil with sugar rubbed in it
have been all found useful. Opium are necessary in
this disease and should be used as early as possible
after the usual evacuations of bloodings. —

Bleeding when other remedies have failed has
been found useful. additional warmth is necessary
in the convalescent state. Cold is certainly
injurious whenever the lungs are affected. Riding
horseback is of service for shaking off the
memories of this disease. Night air is to be avoided.
Blanket is sure. Soaking the feet in warm water
invariably. Consumptions generally succeed
if neglected. —

Dysenteria. Variol, & scurvy. —

Whether it be Idiopathic or Symptomatic is disputed.
The fever is supposed to be the primary disease.

10. If it be a primary disease, it often occurs as a symptom
of a fever called by Sydenham Sebris Introversa.
In this city it is generally complicated with the intermitting fever.
In both cases the cure is the same, therefore 'tis of no
consequence which it is. If the inflammatory
diathesis be considerable, bleeding is necessary. Lenient
purgers are requisite in all cases. Rhubarb is at present
considered an improper laxative. Sals. Crum. Tart.
Manner & Castor oil are the most proper. If a disposition
to purge appears vomits & purges are by all
means to be persisted in, whilst the symptom
which requires them continue. This disease has
been found more fatal in children of 4, or 5, years
old than in adults, probably from their unwillingness
to take proper medicines.

The Irritation may be relieved by Opium which
should be given in every case of Dysentery every
night. Demulcent drinks are proper, that made
of harts horn, Gum Arabic &c. Demulcent injec-
tions with a little Sop. Laud. are invaluable.

Mutton suet boiled in milk or mutton broth ¹¹
in the same way is sure. Plasters on the wrists
have been found sure in the Debris intracœsa of this
city. They ought to be applied on the 6. or 7. day, if
the disorder yield not to other remedies. The fever
attending this disease is of the Remittent or
Intermittent kind: in which case the bark with
quinine is an insufflible remedy. If a Diarrhea
occurs it must be treated as we shall direct hereafter.
Paralysis and Spinalysis of the upper sometimes
of the lower extremities follow this disease. As
in the Cholera Pictorum of the West Indies.

Nervoses in children.

Order II. Comata. Opoplexia ^{sub}

There are different species and degrees of this affection. Tis sometimes very profound and accompanied with total loss of reason. In Opoplexia there is either an intravasation or extravasation of blood or humor. That depending on extravasation is beyond the reach of our art. The third form of Opoplexia is not unaptly fatal. people have had 12 or 15 fits especially dumb-hards sometimes people die of the first or second fit.

The II species of Opoplexia Sanguinea is the most frequent. The first remedy is copious bleeding. This disease depriving of individuality, acts as a stimulant producing full pulse & all the symptoms of inflammatory Diathesis. Tis remarkable that the pulse is not so hard here as in direct Prosternon-Diathesis. The bleeding should be profuse; a vein in each

13.

both arms should be opened & take away 2000 drs of blood. 30 have been taken in some cases with advantage, the pulse must be our guide. A erect posture, loose garments, Asperges & glyptes, strong Cathartics, Blister to the neck, Reddive a strong Stimulating Emulsion of mustard seed applied to the feet are found sure.

Dr Hotham recommends emetics in this case.

II Species Serosa will sometimes occur in tropical patients. Lemnitis as above, bleed with caution - stimulate with spirit.

III Species Hydrocephalica

This disease is supposed to depend on Inflammation of the brain. It has been ascribed in the medical papers of London that it has been caused by the use of Mercury. It generally proves mortal several times of weaker has been found in the brain of those who died of this disease.

IV Species Thabiliaria seldom met.

V Species Praumatica This is to be
treated in the same manner as the Sanguineous.

VII ditto Venenata. The most frequent
cause is strong drink. This species of apoplexy
is present when a person is dead drunk. some
die of it. Cold water & fire are said to be effectual
remedies. Another frequent cause of this species
of Apoplexy is memphitic air discharged from
fermenting liquours. Buckets of cold water
thrown upon the face are useful. Plasters
or arched hot iron applied to the head are said to
be of advantage. Wine cellars or wells long
shut up are dangerous. The same disease
from Insolation is to be cured by cold water & fire.
Apoplexy from cold belongs to this species. Trichia
with snow & flannel are of service, approaching
too near the fire is injurious.

VIII. Apoplexia Mentalis. caused by anger is cured
by blinding plasters. That from joy by cold air and water.

8. *Spoplexia Cataleptica.* Cullen never saw it.

9. *Suffocata* This takes place in persons who are hanged or drowned. If there be any consciousness by wrapping the body in a blanket and driving it, inflating the lungs, injecting in to the intestines. As soon as patient can swallow volatiles & stimulants must be exhibited. Bleeding must not be practised until the pulse has recovered its full vigour.

Dr. Franklin says he has slept agreeably when in a bath. Why does the body sink being specifically lighter than water? Because the patient dies in fear which lessens the bulk of the body & thereby renders it specifically heavier.

The symptomatic species of Spoplexy are.

1 Fever Intermittens. This is very frequent in this climate, & is occasioned by the exceedingly sudative power of the *Chiasmata* the remote cause of those fevers. A lady who was a few days back with Spoplexy

16. apoplexy was cured by bark.
2. Fevers continuo & eruptions fevers begin with apoplexy.
3. Epilepsia often assumes the appearance of apop.
4. Hysteria. counterfeits almost all diseases & among themst Apoplexy.
5. Podagra. Gout frequently puts on the appearance of apoplexy Epilepsia more so than any other disease.
6. Lævus. sometimes produce Apopl. as almost all disorders of the human body
7. Ichuria & Scortful. Scury & scurvy sometimes produce apopl. Those who die of Ichuria die apoplectic.

Prophylaxis or method of preventing the
temperance is necessary. Abstinence, sleeping, giddiness
acute pain in the head usually precedes it. Meats
suppers are improper. Sennet surges are of

of the utmost consequence. Exercise is unavailing.
All the patient's cloaths should be loose. Keeping
on the back is impolitic. Iissus Galons are unavailing.
Restoring suppressed evacuations ^{are} of use.

Paralysis Definition &c see Cullen.

Hemiplegia, is sometimes occasioned by the Spine Bifid.

Paraplegia is generally incurable.

Venereal From poisons. The causes are the

same here as in Apoplexy. Want of motility or excitement

in the nervous ~~system~~ power. In palsies from effusion

the pulse is always full. The remedies are Venesiction

in a large quantity; purges. Aloes have been found

peculiar efficacy by stimulating the rectum and

thus taking off irritation from the brain.

Blister applied to the neck have proved unavailing.

Effusion in the head is chiefly distinguished
from the want of motility in the limbs.

The palsies from want of motility occurs from cold
or Rheumatism sometimes.

When the nervous system is affected Electricity has
been found of use. Hot & cold baths immediately after

18. approach other. Paroxysms. as mustard
stinging with rubles plasters &c. Frictions with
the flesh brush or flannels. Weights suspended to
particular parts affected have been useful Dr Cullen
related a girl affected with this complaint to
put her arm into very hot water, then to lift
a small weight, by degrees a heavier by
which judicious method she was relieved
Prophylaxis the same as in Agueplexy
Tremor aff^r & subduen.

This disease is connected with palpitation. There are
various forms of attacking palpitation & convulsions
This is produced by afflictions of the mind
as Fear, Joy, Anger, &c. a frequent cause is strong
drink. Painter & maltakingists are affected by it
It is supposed to arise from the immoderate
use of Tea, Coffee Tobacco &c Sir J. Pungo
was affected with tumor in consequence of
using snuff & was cured by leaving it off.
Remedies of tumor are 1. To avoid the
cause. 2. Use Tonics. Balsam, Steel & particularly cold tea

Syncope.

19.

Adynamia see Cullen.

^{Cullen} Syncope, the motion of the heart diminished.
Cullen has properly distinguished between Syncope
which depends on the heart & that which depends
on the brain. The first arises from a fault of the
heart, and is beyond the reach of medicine.

The latter from Evacuations, fatigue, passions
of the mind, particular odors, particular sights.

Remedies, a convenient posture, cold water applied
to the temples, & friction, wine when the patient vomits.
To prevent this disposition from Mischief
the cold bath is effected. Resolution would cure
most cases of Syncope that arise from Antipathy.

Dyspepsia see Cullen.

This is a frequent disease it is either Idiopathic or
Symptomatic. The symptomatic is either from
disease of the stomach or the other parts of the
body. The stomach has been very justly called the

20 The Order of the Nervous system, scarcely
any part of the system can suffer without
affecting the stomach: Not only the affections
of the body but those of the mind affect it
likewise, as Anger & grief producing some
of the symptoms of dyspepsia. Very warm
or cold aliments of difficult digestion affecting
it in aperient manner.

Cure. Avoid all humoristic causes particularly
spirits. administer Chamomile tea or any
other bitter, common weak tea will do.
Remits of atonic nature as Col. alk & succu.
Resectives, tonics like as Bluetent Salves
Tonic medicines as Chamomile, Rue, lotu.
Gonlic Emetics, raw onions, Elix. bals.
Aromatics. Exercise, animal diet, not subject
to acelous fermentation, and use
Wine & porter are the most proper drinks
thus give ton to the stomach & prevent nausea.

Hypochondriasis.

Hypochondriasis is a disease concerning the proximate cause of which physicians are not agreed. The patient may be relieved by gentle Laxatives, opium, porter, bleeding just before going to sea taking a gentle purge. Lying with the head lower than the heels has been found to cure it. A draught of salt water likewise.

Hypochondriasis. in Cullen.

In order to understand this disease we must explain a few terms.

Sensibility is the power of feeling without motion or a power inherent in the body of conveying sensation to the brain.

Irritability is impulsion & motion combined. This is also called contractility.

Diseases sometimes arise from excess of sensibility sometimes from Irritability sometimes from both called Motility.

When a defect of sensibility takes place ^{{Stupor} it is called when a defect of irritability ~~Torpore~~ ^{Feeble} Irritability.

22. The Alimentary Canal is the principal seat of this disorder as well as of Dyspepsia, but to constitute the former; but to constitute the former a languor of spirits must accompany the affection of the alimentary canal. Happens in a variety of ways as Costiveness, which arises from Torpor of the intestines, as in Insensibility of the Intellectual Faculties. Many persons may be exposed to cold Heat &c without being sensibly affected by them.

Hypocondriasis shews itself in a deficiency to vomit, the stomach partaking of the Torpor of the Intestines. A diarrhoea sometimes occurs: but Costiveness more generally. Senniting less than natural. Tis often confounded with the Hysteria. They are thus distinguished

1. Men are more subject to this disease than women.
2. More common in winter than summer. Tis cold them warm climate.
3. Tis peculiar to sedentary employments.

4. No Globus Hystericus ever accompanies this disease but it is one of the most Pathognomonic symptoms of Hysteria. The other symptoms are in common with both.

23

In Dyspepsia you have a disease of the stomach without
bumps of spirits: but here the disease of the stomach
is accompanied with bumps of spirits. The Proximate
cause is a defect of motility. Hypochondriasis occurs
in melancholic tempers, Old men, Students
especially of Physic & Theology. When exercise is not duly
employed, 'tis sometimes with grieve.

Cure nearly the same as in Dyspepsia, warm drinks
and baths are panicious. Calomel as being an
unusual stimulant is proper, it should be given
in such quantity as to to produce a salivation.

Long journeys have been serviceable. Anything
which tends to support a connection of ideas
in the present thoughtfull situation should be
removed. Pursuits which interest the passions
are of consequence.

Chlorosis. 'Tis a female disease. Sometimes proceeds from an excessive retention. If say Discharge often means as well as retention.

Remedies. The same as in Dyspepsia but here weak & still are of more consequence also the cold bath —

Spasms in Leiden —

Spasms are either Tonic or Clonic. Tonic not alternating with relaxation. Clonic is that which alternates with relaxation. We must say a few words on nervous tension which may exist without arterial tension. There is a certain degree of nervous tension necessary to health,

depending 1^o on original stamina 2^o on the tension of the arterial system 3^o on the degree of fullness & tension of the alimentary canal and organs of generation 4^o exercise in a certain degree 5^o on a certain degree of cold

25.

Heat and the want of exercise produce Sensibility
Vitality & Motility which are the results of a due
degree of tension.

Scutanus in Cullen.

This disease is supposed to depend upon indigestibility
Cure must be attempted by tonic remedies as
Bark, Wine in large quantity, Cold bath, salivation.
This mucus Resentium may be prevented by purging
of the mucus by a little Balsam of Magnesia.

Convulsio in Cullen.

This disorder is supposed to proceed from Atonia.
Opium is the only remedy during the fit. The
disposition is to be overcome by Exercise the cold
bath. When Rethora prevails we bleed.

Chorea in Cullen.

This occurs between the 10 & 16 years. it may be
cured by warm medicines. Rue powders & warm
cold bath &c.

Raphearia differ in Cullen.

Cause cure &c in ditto

26. Epilepsia. *Def. in Cullen.*

Tis Idiopathic or Symptomatic, 'tis sometimes mortal for Hysteria.

Its proximate cause is mobility. Remedies are usually Tonics of every Kind, astringents, bitter vegetable Cuperum Ammoniac, Zinc, Malt & white wine & Zinc has been said to produce a perfect cure. Seafarers where plethora exists, sudden far change of climate & situation this acts by giving tone to the arterial system & of course to the nervous which takes off the disposition to Epilepsy. Squack is said to have cured this disease by giving the blood of a Land Tortoise warm for three mornings successively.

Palpitatio in Cullen

When Idiopathic 'tis invariable: when Symptomatic it yields to the remedies proper for the disease of which it is an symptom as Gout, Hysteria &c

Asthma in Cullen.

It is divided into humud and spasmodic. In every case of asthma there is spasm however it may arise.

expectoration in general is in proportion to the effluxion
on the lungs.

27.

Cure, in all Taiphathic Species should be the same.

Bleeding ought to be the first remedy. Anosia is often
met with in the Throats it is an alarming symptom indeed
as to bleeding as do other symptoms equally alarming.
Worms are next to bleeding. after these sedatives as
Opium, Pectorales are given squills are the most proper
Garlic, Gum Ammoniac are proper also. Molasses
are most excellent. Leaves & Fines to prevent its
return. Consumptive women ought to suckle their own
children otherwise the Pectora which should be taken
off by sucking falls upon the lungs. 'Tis well known
that a certain quantity of moisture is necessary in
the atmosphere for the well being of all animals.
in such proportion as that quantity is increased or
diminished in the same proportion will those
troubled with this disease be affected. Hard liquor
is found favourable to asthmatic people. Pleurisie is necessary
which should be paid to diet, indigestible food & meat liquors avoided.

28. *Dyspnea in Cullen. Cure the same as that of Asthma
Pertussis. in Cullen.*

This is a contagious disease and certainly a
sporadic one. The seat of the spasm is supposed to
be in the Throachea or Bronchia & also in the Stomach
according to some. There is generally inflammation.
Six weeks are supposed to be its ordinary duration: yet
it sometimes lasts three months. Adults are
sometimes affected with it. This disease sometimes
ends in a mortal consumption.

Cure. The first effectual remedy is bleeding within the
inflammatory diarrhoea taken plene. Leonitis Oxyd
Tinct. & Succinct. or Tan. Em. repeated three or four times a week.
Gentle laxatives as Rhubarb. Salsify. Antispas. Ol. Sicc
Garlic. Sassafras. Opium. Womb drops of the mixture
of Sassafras grm 3 or 4 times a day. with two or three
pounds has been of service. Camphor likewise
A pitch plaster between the shoulders fastened by
brackets changed every fortnight is of use. Change of air.

Syphosis in children.

29.

This often occurs as a symptom of Dyspepsia, not always
A quantity of limpid water is often discharged without them
a cure. is affected by blisters & common stomachics.

Colic in children.

Women are more subject to this disease than men.

Cure in plethoric patients requires, as the intestines are
continually inflamed. This sometimes cures as it takes
tension from the whole system, so it does from the
bowels. Gentle laxatives Crem. Par. in the dose of 3 drs
3 or 4 times a day, neutral salts in small doses & castor
oil have been found of use. Moderately stimulating
Glysters after the foci have been removed by gentle surgery
or of use, salt is mixed with them with advantage
an infusion of tobacco & smoke injected has been found
warm bathing has been found of great advantage
Opiates are necessary throughout the disease.

Blisters applied to the Nails have been used with great success.

Prophylaxis patients ought to avoid pork, veal, lamb
tea & coffee should be forbidden our patients. Gentle laxatives
Hemlock too. exercise, cold bath, Opium my cloth has been useful.

30 Cholera - in India.

This disease appears in warm climates in July and August. It is supposed to arise from an excess in summer fruit. This disease is much more dangerous in old than young subjects.

The summer diseases are the Cholera in July & August, Fibris Remillens Malosa in Septem^r. which continues six weeks sometimes eight, then in October the inflammatory fevers.

CURE. The contents of the stomach should be first discharged by warm water or chicken broth we must have immediate recourse to Laudanum which must be our chief dependence. Next Ailments, hent tea, toast & water, Mint tea, Cham^l tea, rice water particularly. A plaster of lime bread applied to the umbilicus is of great service. To mitigate the stings of the extremities rubbing them with warm Sp^l is efficacious. Catnd toasted like coffee drink grounds have been efficacious.

Cure Evacuate the bile by Yucacu^a & Sars. Emet
gentle laxatives. Opium - Demulcents as the white Deco
tions of Flax seed tea or mutton broth with S. Laud
an starch dissolved in water - Cordials & Tonic medicines
as the decoction of frank with nutmeg indulging
children sometimes in their desires stimulating
atiment has cured them.

Preventions are. daily use of cold bath of
wine & wine - a moderate use of salt meat
removing children into the country before the
time in which this disease occurs.

Diarrhea in Children.

All ages are subject to this disease tho it more
frequently happens from the age of 36. to 40.
It is often of long duration sometimes 2, 3, 6
months. Instances are recorded of its lasting
15 years. This is supposed to be of the Arthritic
kind, it often follows Dysentery.

Cure P. ruber. 2^o Vomits of Yucacuenda.

32. repeated every week 5 Ofringents as infusions
of oak bark, comundil root, Port wine: Bitters
stimulants as turpentine pills, decoction of Gu. S.
Decoctions a Chamomile tea Mallows tea, Rice water
mint tea & Blisters applied to the wrists are very
serviceable tho they do not always succeed.
They may be repeated, upon the former being dry.
The diet must be regulated according to the
assuession of the stools. If black regulated
aliment and Summer fruit will be proper
This approves that animal acrimony prevent
Excess is of great consequence, Flame incis.
Facts, on estimate Diarrhoea has been cured by an
inflammatory diatheris, There has been an
instance of a lady with child, who being
troubled with a Diarrhoea, was seized with a
Pleurisy, she was treated as for a pleurisy and
was surprised to find that her lax had left her.
As the Pleurisy is attended with increased tone
of the arterial system. It is supposed to have
cured the disease by impenting tone to alimentary con-

55.
Disease in Cullen.

This disease is connected with debility and rickets
pains. It yields to tonic medicines and the cold bath.
Dr. Mead has treated of it largely. common salt
taken every morning is said to have cured it.

Hysteria in Cullen

This disease may be distinguished from Hypochondri
1st by its affecting more women than men.
2^d affecting single women more than married.
3rd that Mulierus Mystericus is Pathognomonic.

4th This is a disease of warm climates seldom of cold
5th Hysteria has been confounded with Epilepsy.
6th Its proximate cause is the same as that of Epilepsy
7th i.e. Ossility — Cure the same as Epilepsy.

Hydrophobia in Cullen

This disease commonly, but not always, derives
from the bite of mad animal. The common time
of its appearance after the bite is supposed to be
within 40 days but sometimes 3 months. I am advised
to follow the same principles here as in Tetanus.

54. *Question* *What* *in* *man* *is* *occurred* *by* *accident*
cause, *does* *it* *not* *depend* *on* *deleility*? *A* *Fact*
related *by* *Fosbergill* *induces* *me* *to* *believe* *that*
it *does*. *Two* *persons* *were* *bitten* *by* *the* *same*
dog. *One* *of* *whom* *died* *of* *the* *disease*. *It* *was*
remarked *that* *the* *wound* *of* *the* *person* *who* *died*
was *healed* *before* *he* *was* *seized* *with* *Hydrocephalus*,
while *that* *of* *the* *person* *who* *recovered* *remained*
open. *I* *discharged* *considerably*. *Were* *the* *wound*
must *have* *been* *accompanied* *with* *a* *great* *degree*
of *inflammation*. *May* *not* *this* *inflammation*
have *given* *such* *a* *tone* *to* *the* *system* *as* *to* *com*
tract *the* *sedative* *powers* *of* *the* *poison*. *Another* *fact*
D^r Mathias *says* *that* *a* *mad* *dog* *were* *bitten* *by*
a *wif*, *which* *produced* *a* *swelling*. *The* *dog* *was* *cured*
the *wound* *ought* *to* *be* *dilated* & *inflated*. *Frank*
cold *leath*, *Exercise* *ought* *to* *be* *used* *in* *order* *to* *excite*
the *greatest* *tone* *possible*. —

Order *Q^romie* *The* *judgement* *injured* *with* *ppress*
or *leome*. *The* *mind* *acts* *up* *on* *the* *body*. *The* *body* *upon* *it*
It *consists* *of* *will*, understanding, moral faculty, & conscience.

Fatuity is born with us, or acquired by old age or accidental causes.

A certain consistence of the brain is necessary to right understanding. Those of children are soft, brains of madmen commonly too firm. Dr. Stork employed Egyptian weed in Amentia with evident advantage, here. Tonics, mercury, cold earth, cold air had fair titles of service in this disease.

Facts. Dr. Priestly had a child who was an idiot at 4, or 5, years of age, it fell from a window & gained the use of its reason. Its skull was not fractured but much contused. Dr. Morro had a child in the same situation who recovered by being burnt in the foot. The excising the faculties is the best method of preserving them. So thus we find some preserved them to a very advanced old age.

The memory is capable of being improved. Toeffler this some Physicians recommend the study of Physic this Metaphysics

There is nothing more capable of improvement by excising Spains Main memory —

36. Melancholia in Cullen.

This disease may arise Love, Grief, Fear, Salmos, & all other passions of the mind. The most frequent causes of this disease are Love, Grief & Religion.

It is very frequent in Great Britain impeded so excess in animal food malt liquours & aomspair. 'Tis said likewise that their manner of education in the English Colleges, with their passion for using Tragedies acted upon the stage dispose much to this disease.

Remedies. Following, Misting, Singes, Regular Employment. Long journeys have sometimes proved serviceable —

Mania in Cullen.

The worst species is that where the moral Faculty is entirely suspended. This Disease is generally hou-ditory. The symptomatic species follows the use of Hemlock, Opium, Drinking, Heresies and particularly purpural, which is to be considered as *Synochus*, *Typhochus*, *Typhus mitior* or *Grenovir* according to Lymph.

P. Dulce recommends pulses when the ³⁷
disease occurs in Summer or Autumn for it then
generally appears with bilious symptoms. It is
hazardous depending on a certain conformation
of the brain, & occurs at different periods of life
often requiring occasion causes to produce it.
we ought to have particular regard to the pulse
If the Tonic prevails we must attempt the cure
first by bleeding. Thus we diminish arterial
tension & of course the nervous is also taken off.
Purgings. Plastering. warm bath. cold water
assisted to heat in such a manner as to produce sudore
effects. violent labour all of which have been found
use. Opium after evacuations is of the utmost
consequence.

Of Tonic Species a different mode of practice is
necessary here. The most powerfully exciting remedies
generally do but little service. Plasters, stimulants,
vomiting, exercise, prove most useful.

38 Leon Helmont says that melancholy which
is common as Atonic madness used to be cured by
throwing the patient into water & keeping him
there till almost drowned.

Leon Tieffen tells us that madness is sometimes
caused by a fever coming on. An inflammatory
Angina has caused madness as also an abscess
in the thigh. Issues, scatons, encouraging abscesses
& the more frequent application of Bolsters' tis
likely would prove useful. In the Tonic species some
severity may be necessary; but in the Atonic more
gentle means are to be used.

Oneirodromia. The imagination violent & trou-
blesome in sleep. see Cutler.

Troublesome dreams, night mares, & walking in
the sleep come under this head. In profound sleep
the thinking powers of the soul are entirely
suspended; in this situation therefore there is no
dreaming. In them who walk, it is supposed that
that

that part of the brain which goes to the muscles ³⁹
is not collapsed. Hence the property of commanding
Emin which brings on sound sleep. Avoiding such
senses. If used to suppress the want of the usual
stimulus ^{will} produce the same effect. an quiete may
sometimes be necessary. It is supposed that all
men who go to bed well at night & are found
dead in the morning die of Insultus —

Cachexia in Cullen.

Marcores a wasting of the whole body

Tuberculosis, Asthenia & hectic fever in Cullen
Children are more subject to this disease than men.

Ulcers in the kidneys, stomach &c are frequent causes of the
disease also scrofulula & poison produce it. The poison
is often generated from the use of Copper vessels

Cure Tonics, as Monk, steel, cold bath, exercise &c

Atrophia Lemys asthenia without hectic fever

When this disease does exist (which is doubtful) the cure is
the same as above. Steel in chronic diseases would be a
valuable ^{medicine} if used in large quantities. Administered in powder
to the ^{gut} would prove very beneficial.

Intumescentia a troublesome swelling
on the whole or a part of the body

Adipose

Polyarctia a troublesome swelling of the body from fat
that under certain circumstances is a disease. Those
who become fat before their 40th year are naturally long
lived.

44.
after this period when the various Reshore takes place is
a sign of long life.

Causes of Fatigue when it is a disease are Tumors Intern
tumors, intemperance, intemperance, and a sedentary life, all these
all these produce it which proves it to be a disease.

It also follows the cessation of certain evacuations, and
the cessation of the stimulus of thinking.

Many remedies are tried none is to be depended upon
but exercise.

Pneumatozo

Pneumatozo A stern elastic swelling of the body crackling
under the hand. in Cullen.

Whenever this disease occurs Exercise, Friction & cold bath
are the only remedies to be depended upon.

Sympaticites A stern elastic swelling of the abdomen
costiveness, astringing of the pants. in Cullen
Cure. as above.

Physometra in Cullen.

A swelling of the womb from wind —

Cure. Tonics as frank Seal &

48.

Aquoso.

Masarda an inelastic swelling of the whole or part of the body. in Cullen.

Cure. Purges of jalap which are supposed to be the most effectual. Hydrogogue purges; as Scouring Rennet in Anasarda & Asafoetida are very powerful remedies. Comfits & syrups together. A large quantity of Tart. Emul. Tartar. Accid. mistake, wrought a person in a droppings very violently with ways Scouring him. Diuretics as Alka. Smetane salts. Nitre particularly is dissolved in a pint from a table spoon full to a wine glass taken Threethree days. Diaphoretics. Scarifications, Mercury Tonics, Aromatics, Blistering fomentations have been found of use. Ascites Dr. Thringill recommends to leap as soon as possible, before the sympathetics have lost their tone.

Hydrothorax in Cullen. Symptoms in Other edematous swellings in the legs usually accompany this disease.

Cure.

Hydrocephalus *see* Cullen.

Spina bifida. Caustic is said to have cur'd it.

Hydrocephalus *see* Cullen.

A drooping of the womb has been cur'd by mercury
strew'd in the quantity of 3ij to a down is ~~strew'd~~ ^{then} cur'd.

Hydrocele *see* Cullen.

There are two methods of cure viz. Caustic &
Needle. Most people prefer the caustic. The
inflammation excited by its action cures the disease.

Solido.
Rachitis. *see* Cullen.

We have very little of this disease in this country
low diet contributes to deprive the bones of that
matter which is necessary to make them dense.

People think that putting children upon their feet
too soon disposes them to Rickets. This is the reverse.

Remedies are Steel, Marck, Frictions, Cold wash &
generous diet. A radical cure is to rub the spine
& whole body with Histo oil.

lib.

Impetigo nis in bullen.
Scrophula in bullen.

Negroes seem to be more affected with this disease than white people. A predisposition to this disease is hereditary, as in the Gout; but it is not congenital. It may be acquired. Dr. White's chief dependence (who had experience of 1200 cases) was on Balsam of Sassafras & Sassafras. & Sulphur & G. nata
time. The tumors most frequently appear in the neck and throat. Caution is necessary in discussing them as they very often fall upon the lungs and thereby bring on a consumption.

Syphilis in bullen.

Dr. Hunter's treatise on this disease is a valuable one. A fresh infection has been known to cure a Gout. An injection of port wine will generally cure it. It may taken shewing them by coition.

Hypochondriacal Ills. is fall thru the 45.
most troublesome & distressing to which human nature
is subject. It is called the Noddle Pox. If the disease
does not appear within three months after coition
& on the usual place we may assure the patient there
is no infection. It first appears in Veins, Glands,
Bulges, or sores upon the scrotum.

Cure, see Hunter's Treatise. Opium is not a radical cure
for this disorder. The Quicksilver pill is to be preferred
to any other preparation of Mercury, as persons
under the use of it are not liable to catch cold nor
prevented from pursuing their business.

Scorbutus. consult Lind or Game. That the
fluids are vitiated is certain. Dr. Milman's theory
is that the solids are the seat of this disease. Scurvy
provisions are said to produce scurvy. His thoughts
may not to be as putrid disease, because the blood is Anti-
septic. Dr. Blair takes notice of a dimness of sight
which takes place in this disease -

46. Cure. This must consist in removal of all the
remote causes & cures the disease also. Lime, orange
or Lemon Juise are the best applications for the
wounds that occur. Poultices applied should be sprinkled
with Lemon juice &c.

Elephantiasis Sepsis. Tremlecia & Trichoma in Cullen.

These diseases seldom occur at present. Trichoma
the formerly very common in Poland is at present
little known. Tremlecia or the yaws has been cured
by Merc. C. sub. Gum Guiac given in large quantities
Pectoris in Cullen.

Taundice sum Calculi is common is common. These
calculi are composed of indurated bile, therefore impure
-erly called calculi. They are inflammable. Boerhaave
recommends drinking warm water in large quantities
as a relaxant.

Cure. Should begin by an Emetic; the bowels should
be kept open; Aloes are most commonly used & said to

respiration & tension to all kinds of motion occur. This should be remedied by blisters. When these remedies prove unsuccessful Calomel is serviceable. Mineral waters on account of their astringency are good.

Icterus Gravidarum consoндuring pregnancy is cured by delivery.

Icterus Infantum is cured by Rhubarb

Locales su leuun

Dysesthesia su leuun.

Gen. Catigo. su leuun

An instance of which occurs in Cataract. Mr. Col. is said to be of service in incipient cataract. Concting is generally the only effectual means. It is commonly unsuccessful. Another instance is from opacity of the cornea a defect of aqueous humor also sometimes from gutta serena. which is a disease of the retina arising from compression. when this disease arises from compression bleeding & fusing are to be used

110. *Amatorius*, *lysoper* *mucluclitus*. *re* *leullen*
re *authous* —

Dysecora Paracensis *re* *leullen*.

Sir P. Pringle says that Loss of hearing is incurable only when it arises from indurated wax, which may be extracted by instruments. Warm water injected for 2000, months is said to be the best solvent.

Chosmia The smelling diminished or abolished.
Arises from a defect of Nerves or insensibility of the Olfactory Nerves. This disease has been cured by strong Inhales. —

Agheustia The sense of taste diminished or abolished.
This arises from the same cause as the former and is cured by Stimulants. Taste is compared to Music & has its accordant & discordant tones if I may so say. When two substances that accord, are combined they produce an agreeable sensation, as the concord in Music. When the discordant are conjoined, as Fish & Flesh it occasions a disagreeable & uneasy sensation, this manifestly.

merging a disagreeable taste. Facts as the discordant
harmonies of music —

Anesthesia the want of feeling abolished or
diminished. On this & the former disease see authors.

Or 2^d **Dysorexia** an inordinate or deficient
appetite.

Pruritus an appetite for food in greater quantities
than can be digested — An excessive appetite is often
a disease. 'Tis difficult to fix the cause of this disease
till we are acquainted with the cause of hunger.

Aliment serves two purposes 1st to nourish and
supply waste 2^d to act as a stimulus as ~~a stimulus~~
and give tone to the system. Habit regulates
this stimulus. 'Tis by habit this disease is
acquired, so by inducing a contrary habit by
degrees, this disease is cured.

Polydipsia an unusual appetite for drink.

This disease is often artificial. 'Tho' it is frequently
symptomatic of other diseases. The Indians who

50. who live more agreeably than any
other people never drink before noon, & then but little.
In warmest weather & always occasions drinking before
2 o'clock. Drink is either stimulant or sedative in
both cases it must be manifestly injurious: for the
secondary operation of stimulants is always sedative.
A homaſful of common salt has cured it.

Pica A desire for things not used for food.

This disease occurs in Chlorosis, when an acid abounds
Nature directs them to eat chalk lime to which
destroys it. Children often shew a great desire
for salt meat, which is thought to be strange;
but as in them an acid abounds the salt meat
is one of the best medicines: as by giving tone
to the stomach it avoids acidity.

Palpiasis & Nymphomania in better
they occur from physical causes, as pride, fulness of
diet &c. The best antidote is running Labour.
Compition has been said to be an antidote. The
Monks take it to subdue their appetites. It acts as a sedative.

This disease is either simple or complicated with other diseases. It was first remarked among the Scots. New England men are sometimes also very much affected with home sickness. People who arrive here from Scotland are apt to be affected with Intermittents. It is amazing with what force this disease blends itself with it, so much as to make them perfectly miserable if they contract it which is the best remedy. —

Appetitus, Deficientes.

Anorexia. a deficient appetite for food. This is a symptom of Dyspepsia.

Adipsia a suppression of appetite for drink. It is most frequently a symptom of a disease. —

Impotensia a want of Lust or Impotency of Semen. —

Cure. Cold Bath and Electricity.

Opphonia. a total suppression of voice without hoarseness or syncope. 'Tis sometimes occasioned by a tumor in the trachea. Salivation has effected a complete cure.

Mutitas an impotence in articulating words. When this is congenital it is not incurable. Many persons born dumb have been taught to speak by Mr. Sprywood. He concluded that a child must be necessarily born dumb who was born deaf. Hence concluded that the organs of speech might not be injured.

Paraphonia a depraved sound of the voice. The voice changes at the time of age. Hoarseness generally arises from a defect of mucus in the trachea; in this Demulcents as Siquorice & an proper. When it arises from relaxation. Acids will relieve

Bellismus A defect in the articulation of words. ^{53.} Cullen.

Stuttering arises from a convulsive motion of the tongue. Passion, Thrust, haste &c produce this where it is not habitual. When it is singing will relieve it or speaking very deliberately.

Strabismus. The optic axis of the eye not converging squinting arises originally from weakness sometimes from disease & frequently from carelessness or accident. Cure. A pair of spectacles of paste board worn for a length of time has been found to cure —
Contractura in Cullen.

Warm bath relieves this disease when it arises from the enlargement of the capsular ligament. Deep Exfoliations made by caustic proportioned to the largeness of the joint, & kept running will be service.

Dysphagia in Cullen —

Or *4th Spasmodoses*.

Profusio. A flux of blood.

545 It arises from Jaundice. Many persons from
a light cut or the drawing of a tooth are in imminent
danger of their lives, & sometimes do really die. Nothing
but compression till the artery has united will relieve
this disease. A discharge of this kind from the Nipple
has been cured by applying a rag wet with
Port wine to the part affected.

Ephiodrosis. A putrid ulcer. Evacuation of sweat.

When this disease is unusual the cure is to be attempted
by a flannel shirt, warm & Elixir of Vitriol. When it
is partie washing the part with port wine.

Epiphora. A flux of Lachrymal humors

Fistula Lachrymalis has been cured by Mercurial
frictions ~~Mercurialis~~

Ptyalismus. A flux of Saliva

This is cured by exciting evacuations elsewhere. That
species occasioned by mercury is certainly cured by
syrup. Salsify is esteemed the most proper purge. Sucking
Limes or Lemmons when the mouth is not sore removes the disease.

ONURSIS or involuntary flux of urine from
the bladder without pain.

That species arising from want of tone in the sphincter
vesico is best relieved by a blister applied to the perineum
This gives tone to the perineum which is communicated
to the bladder & thus cures the disease. Balsams lanthan.
&c are frequently given also. That arising in the last
months of pregnancy is remedied by holding & urging
lacting off as much as possible the compression & irrita-
tion. After the purge an Anodyne may be given.

Dark & thin scabs are of service

Gonorrhoea in children.

This disease usually appears after 12 days from 3.
to 6 weeks is the usual time

Gonorrhoea pura sometimes occurs from injuries
bruise, strain, &c

Impura may be communicated thence then
by having connection with impure women.

56 Cure of this species has been attempted. 1st by
means of caustic Alkali which may be safe & powerful
when the first symptoms of the disease appear; it
must be used however as soon as the infection is
received; or not at all, after the symptoms have
proceeded, it will then be injurious. It must be used
by way of injection very much diluted when
it will be as effectual as Monk in Intermittents.

2. By mercurial injections, of which I have always
found the following on the best.

R. Ung. t. Mer. 3*i.* Mucag. Gum Arab. 3*ii.*
Vitell. Ovi No. 1. Oq. Sont. 3 *iiij.* m.

For this injection, the ointment should be made
without suspentives. Sulphur, Calomel or Mer. C.
sub. dissolved in water are also used.

3. Sennent Purges are sometimes of consequence
they are only useful in keeping down inflammation.
When the discharge is thick & whitish, & the inflam-
mation gone off you may have recourse to astring-

Chalyb. Injections of Sac. Satu. are sometimes used, but it is apt to induce inflammation of the neck of the bladder. When ulceration is suspected in the urethra Calomel may be injected.

Gleet is in the penis, what a Coryza is in the nose. With an increased secretion of mucus. When it subsists a long time, ulcers occur which are troublesome. Scar to be cured by mercury. When it arises from Relaxation. Astringent injections are to be used. The most frequent one is wound dray, or equal parts of Port wine & water. This is more efficacious and also safer than any other. When the Gleet continues six months there is no danger of infection —

Dormientium is a very troublesome and obstructive disease. When leath, steel, wine and cold bath have failed, it may be perfectly cured by salivation. Lying upon the back is unfriendly to this disease —

58. Or 5. Epischeses an suspension of the evacuations

Obstipation in Cullen.

This is a common symptom in Hypochondriasis and Dyspepsia. Hysterical people, hence more women than men are troubled with it from not being able to obey the calls of nature. The duration of a stated time, regularly referring to the usual place at that time would prevent the ill effects attending this disease. Vegetables are more appropriate than animal food. Walnuts pills is used in this case: but dangerous on account of its narcotic properties. A pimple attends the reported use of it. Bladder root chewed in the morning prevents it. Glyceres are injurious as they relax the intestines. Ischuria, a total suspension of urine.

Owing to worms sometimes in the bladder, waters, kidneys they have been discharged without pain. That which arises from Gravel, Urarts, Calculus &c is

is of all the most difficult to cure. *Nicadewi* 59.

is said to be the vine which binds the particles of stone together. Alkali is known to be a solvent. 3*i.* Alk. salt dissolved in *Peymantwater* or *Chromol* tea 16*ij.* Take a cup full taken twice a day is an excellent remedy.

Watercress acts in this case as a tonic. Flitter the leech succeeds as well. A biscuit or crust of bread taken every morning has proved serviceable. In the salure there is always a septic tendency. after stagnation it is supposed to possess depurating qualities not present in it before.

Dysuria is a most painful & in some an impeded emission of urine.

It occurs from Gonorrhœa, or *Cæmثاریدس* taken or applied.

Cure. aperient drinks as *Flaxseed*, *Worm* or *Barley* tea, with *Gu. Anal.* it occurs from sperm compression. *Mars* & *Opium*. *Flaxseeds* are to be depended upon. *Catarrhus Venico* is.

60. is easily known from the unusual affection
1st by the cause not preceding. 2^d being not
accompanied with inflammation 3^d the mucus
being remarkably viscid, never green or tinged
with blood.

Cure, Tonics, Astringents, Pijecions, Palsoms &c
This disease is sometimes a symptom of Gout.

Dyspermatismus in Cullen

○ Amenorrhoea in Cullen

This disease arises either from emmision or suppression.
When there is Fever it must be treated as the primary
disease. No blood letting is seldom necessary.

Emmenagogues Probably no medicine acts directly
on the uterus. Many act indirectly by strengthening the
whole system. That is preferred except where affections of the
lungs occur in doses of from 3*l.* to 3*fl.* Mercury is used as
a general stimulant. — Mr. Chalybiate powder is to be

be given in powder. A few salts of steel in pills - in three
long doses H.P. of them will generally be sufficient.
Tonics in the intervals of amenorrhoea during the men-
strual age will be useful.

In all chronic diseases of females, we should suspect an
obstruction of the menses.

About the time that menstruation ceases Menorrhagia,
Stellacium, Flatulence, Pneumonia, Complaints, leanness
of the womb, or breast, piles &c. sometimes occur.

Then occasional bleeding & keeping the bowels gently
open with Tartar Sulphur will be necessary.

Or. Tumors.

Or. increased magnitude of a part without Inflammation
Oncerisma Varix Ecchymoma in leucites.

In Bleeding. The blood will often insinuate itself between
the skin & muscles. It appears black sometimes allowing
washing or necessary to be done the blood is absorbed
in a few days.

62. Schirrhus in Leuken.

It should be all means be extirpated as it generally
leads to a cancer. The knife is the best mode. Mercurial
ointment will sometimes disperse these tumors.

Tis better remove it before suppuration.

Cancer in Leuken. in Team Sweeton

Cancer on the breast or neck is attended with most danger
In ulcerated cancers caustic is the best remedy.

There are various caustics as Oil Reit. Cam. Xun. Lap. Frise
Aren. Alb. is thought to be preferable to any. The strength
of the application can be better regulated. It acts by
inducing inflammation which throws off the morbid
part. - About 15 or 20. gr. to 3. aq. sol. A
piece of Linen dips in this and applied to the part
one day is found to be the most successful manner.

Brubo. a suppurating tumor of a conglobate
Caustic is the best manner of opening it.

63.

Lupia a movable soft swelling under the skin without pain
As soon as this disease appears a caustic should be
immediately applied to the part, which seldom fails
of effecting a cure.

Hydalis ^{hur} vesicles of the skin filled with a watery
This may be caused by the long continued use of anala
caustics; as Sulphur Glaucon Salts &c. The most certain
remedy is Calomel & wheat flour $\frac{1}{4}$ parts of calomel
& $3\frac{1}{4}$ flour may be begun with & gradually increased
till we arrive at equal parts. N.B. A Quack remedy.

Hydatitus in leuken.

White swelling chiefly affects the knee. A suppositious
blisters or caustic plaster continued for 3 months is
seldom known to fail.

It is a distressing application...

64.

Ecostosis. A hard tumor adhuring to the bone
Consult Melle.

Ord *Ectopic u. Cullen.*
Treatment. Melle Pass &c

Ord. *Dyaphyses u. Cullen*

In all cases where joints are injured by gunshot
wounds amputate. In endeavouring to save the
limb the patient is lost. The bone becomes carious
at length an hectic fever closes the scene.

In such cases there is generally a great deal of
contusion & tendency to gangrene particularly in
Summer which renders the taking of Bals & indis-
pensably necessary —

They appear crusty in the legs. There is an intimate connection between the legs and intermission.

Cure. By diet avoiding the use of spirit by Monk by destroying purgative flesh by Escharotics; by dressing the part affected with a lead stocking. *Nemus Oce.*

The use of a smooth trough, Lamineater, Mercujects an unusual stimulant by resolution. The carous poultice; wort liquor all have been used with evident advantage.

Herpes & Tinea in leuken.

To the part shaved apply Tar ointment or that of Bleu tinct. After fair sprinkled with powder of Calom. & flour on twice a day. Should the fair a solution of white Aronic is said to be an important remedy.

Pora. Fractura Caries in leuken.

Itch &c. in scutches

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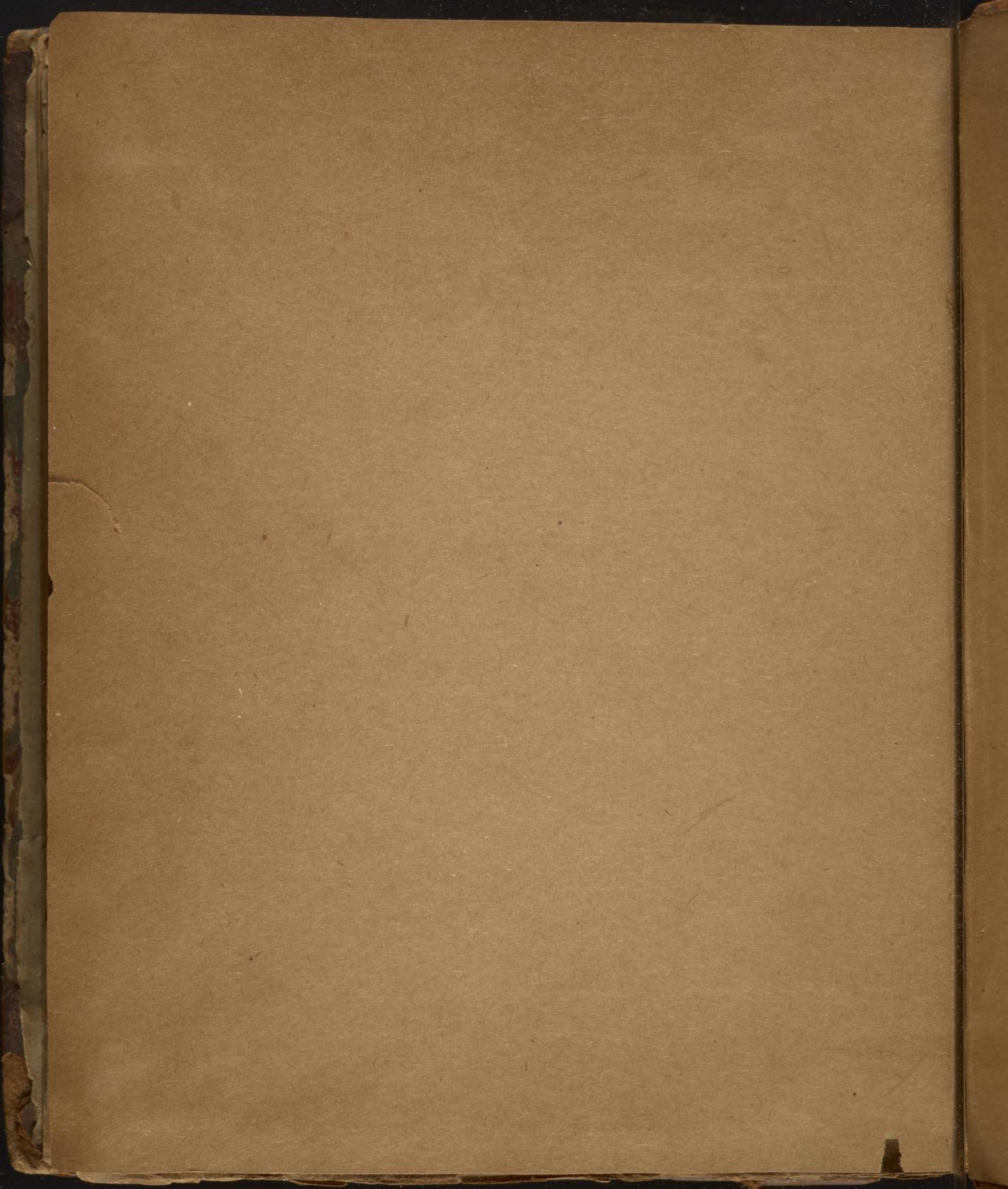
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